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ORT OF THE SECRETARY
OF THE SMITHSONIAN
INSTITUTION

FOR THE YEAR ENDING JUNE 30

1923

(Publication 2749)

Smithsonian Institution
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National Museum

WASHINGTON
GOVERNMENT PRINTING OFFICE
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THE SMITHSONIAN INSTITUTION.

June 30, 1923.

Presiding officer ex officio.—Warren G. Harding, President of the United States.

Chancellor.—Calvin Coolidge, Vice President of the United States.

Members of the Institution:
- Warren G. Harding, President of the United States.
- Calvin Coolidge, Vice President of the United States.
- William Howard Taft, Chief Justice of the United States.
- Charles Evans Hughes, Secretary of State.
- Andrew W. Mellon, Secretary of the Treasury.
- John Wingate Weeks, Secretary of War.
- Harry M. Daugherty, Attorney General.
- Harry S. New, Postmaster General.
- Edwin Denby, Secretary of the Navy.
- Hubert Work, Secretary of the Interior.
- Henry Cantwell Wallace, Secretary of Agriculture.
- Herbert Clark Hoover, Secretary of Commerce.
- James John Davis, Secretary of Labor.

Regents of the Institution:
- Calvin Coolidge, Vice President of the United States, Chancellor.
- William Howard Taft, Chief Justice of the United States.
- Henry Cabot Lodge, Member of the Senate.
- A. Owsley Stanley, Member of the Senate.
- Medill McCormick, Member of the Senate.
- Albert Johnson, Member of the House of Representatives.
- R. Walton Moore, Member of the House of Representatives.
- George Gray, Citizen of Delaware.
- Charles F. Choate, Jr., citizen of Massachusetts.
- Henry White, citizen of Maryland.
- Robert S. Brookings, citizen of Missouri.
- Irwin B. Laughlin, citizen of Pennsylvania.
- Frederic A. Delano, citizen of the District of Columbia.

Executive committee.—George Gray, Henry White, Frederic A. Delano.

Secretary of the Institution.—Charles D. Walcott.
Assisant secretary.—C. G. Abbot.
Chief clerk.—Harry W. Dorsey.
Accounting and disbursing agent.—W. I. Adams.
Editor.—W. P. True.
Assistant librarian.—Paul Brockett.
Property clerk.—J. H. Hill.

NATIONAL MUSEUM.

Administrative assistant to the secretary, in charge.—W. de C. Ravenel.

NATIONAL GALLERY OF ART.

Director.—William H. Holmes.

FREER GALLERY OF ART.

Curator.—John Ellerton Lodge.

BUREAU OF AMERICAN ETHNOLOGY.

Chief.—J. Walter Fewkes.

INTERNATIONAL EXCHANGES.

Chief clerk.—C. W. Shoemaker.

NATIONAL ZOOLOGICAL PARK.

Superintendent.—Ned Hollister.

ASTROPHYSICAL OBSERVATORY.

Director.—C. G. Abbot.

REGIONAL BUREAU FOR THE UNITED STATES, INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

Assistant in charge.—Leonard C. Gunnell.

REPORT

OF THE

SECRETARY OF THE SMITHSONIAN INSTITUTION,

CHARLES D. WALCOTT,

FOR THE YEAR ENDING JUNE 30, 1923.

To the Board of Regents of the Smithsonian Institution:

GENTLEMEN: I have the honor to submit herewith the customary annual report showing the activities and condition of the Smithsonian Institution and its branches durng the fiscal year ending June 30, 1923. The first 26 pages of the report contain an account of the affairs of the Institution proper, with brief abstracts of the work carried on by the various branches of the Institution, while appendixes 1 to 10 give more detailed reports of the operations of the United States National Museum, the National Gallery of Art, the Freer Gallery of Art, the Bureau of American Ethnology, the International Exchanges, the National Zoological Park, the Astrophysical Observatory, the United States Regional Bureau of the International Catalogue of Scientific Literature, the Smithsonian Library, and of the publications of the Institution and its branches.

THE SMITHSONIAN INSTITUTION.

THE ESTABLISHMENT.

The Smithsonian Institution was created by act of Congress in 1846, according to the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust Congress determined that the Federal Government was without authority to administer the trust directly, and therefore constituted an "establishment" whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

THE BOARD OF REGENTS.

The affairs of the Institution are administered by a Board of Regents whose membership consists of "the Vice President, the Chief Justice, three Members of the Senate, and three Members of the House of Representatives, together with six other persons other than Members of Congress, two of whom shall be resident in the City of Washington and the other four shall be inhabitants of some State, but no two of them of the same State." One of the Regents is elected chancellor by the board; in the past the selection has fallen upon the Vice President or the Chief Justice; and a suitable person is chosen by them as secretary of the Institution, who is also secretary of the Board of Regents and the executive officer directly in charge of the Institution's activities.

In regard to the personnel of the board, the following changes occurred during the year: Robert Walton Moore, Member of the House of Representatives from Virginia, was appointed a Regent by the Speaker of the House, to succeed the late Lemuel P. Padgett. Mr. Henry White was reappointed by joint resolution of Congress. Mr. Irwin B. Laughlin, of Pennsylvania, was appointed to succeed the late Dr. A. Graham Bell, and Mr. Frederic A. Delano, of the District of Columbia, to succeed Mr. John B. Henderson, who died during the year.

The roll of Regents at the close of the fiscal year was as follows: Calvin Coolidge, Vice President of the United States, Chancellor; William H. Taft, Chief Justice of the United States; Henry Cabot Lodge, Member of the Senate; A. Owsley Stanley, Member of the Senate; Medill McCormick, Member of the Senate; Albert Johnson, Member of the House of Representatives; R. Walton Moore, Member of the House of Representatives; George Gray, citizen of Delaware; Charles F. Choate, jr., citizen of Massachusetts; Henry White, citizen of Maryland; Robert S. Brookings, citizen of Missouri; Irwin B. Laughlin, citizen of Pennsylvania; and Frederic A. Delano, citizen of the District of Columbia.

GENERAL CONSIDERATIONS.

A systematic campaign was begun during the year to increase the endowment of the Institution to more adequate proportions though at the close of the year this has had no material success. It is felt that there is considerable misunderstanding throughout the country regarding the resources of the Smithsonian Institution, many persons believing that it is supported, at least to some extent, by the Government. As a matter of fact, though the Congress appropriates funds annually for the maintenance of the various bureaus which have grown up around the Institution and are administered by it, not one cent from these appropriations can be used by the Institution proper for the purpose for which it was created, " the increase and diffusion of knowledge among men."

These purposes, which are carried out through research, exploration, and publication, must be supported by the funds of the Institution itself or by money contributed for special purposes by the friends of the Institution. As the endowed funds of the Institution, consisting of the original bequest to the Nation of James Smithson and subsequent gifts and bequests, amount to only a little over a million dollars, yielding an available annual income of approximately $60,000 from which the administrative costs of the Institution and of the general direction of its seven branches must be paid, it will be readily apparent that but little remains each year for research and exploration. It is believed that if the financial situation of the Smithsonian Institution and its excellent position for carrying on needed scientific work were more fully understood, there would be ready response to its plea for a larger endowment, and its program of scientific research and exploration could then be expanded and pushed vigorously, to the ultimate benefit of mankind.

An outstanding event of the year was the formal opening on May 2, 1923, of the Freer Gallery of Art, the culmination of Mr. Charles L. Freer's splendid gift to the Nation, through the Smithsonian Institution, of his unrivalled collections of American and oriental art and a beautiful building to house them. The opening was well attended and was the cause of favorable comment in art circles throughout the country, many of the leading art journals carrying full accounts of the gallery and its contents. The building is now open to the public daily except Mondays.

FINANCES.

The permanent investments of the Institution consist of the following:

Deposited in the Treasury of the United States $1,000,000

CONSOLIDATED FUND.

Miscellaneous securities carried at cost of $192,770.28, either purchased or acquired by gift, and constituting the consolidated fund, namely:

West Shore Railroad Co. guaranteed 4 per cent first-mortgage bonds, due in 2361	$42,000
Cleveland Electric Illuminating Co. first-mortgage 5 per cent gold bonds, due in 1939	10,000
Atchison, Topeka & Santa Fé Railway Co. 4 per cent general mortgage bonds, due in 1995, gift	2,000
Chesapeake & Ohio Railroad Co. first consolidated mortgage 5 per cent bonds, due in 1939, gift	2,000
Baltimore & Ohio Railroad Co. 5 per cent refunding general mortgage bonds, due in 1995, gift	5,000
P. Lorillard Co. 7 per cent gold bonds, due in 1944, gift	6,000
Liggett & Myers Tobacco Co. 7 per cent gold bonds, due in 1944, gift	6,000

New York Central & Hudson River Railroad Co. 4 per cent gold debenture bonds, due in 1934	$4,000
Dominion of Canada 5 per cent gold bonds, due May 1, 1952	5,000
Province of Ontario debenture bonds, due in 1952	3,000
Norman P. Scala 3-year note on 140 East Capitol Street, due November 20, 1925, at 6 per cent	4,000
Northern Pacific Railway Co. refunding and improvement 5 per cent bonds, due 2047	6,000
Real estate 7 per cent trust notes on improved property in the District of Columbia, due 1925	5,000
Northern Pacific Railway Co. 6 per cent bonds, due 2047	41,500
New York Central Railroad Co. refunding and improvement 5 per cent bonds, due in 2013	10,000
Brooklyn Rapid Transit Co. 5 per cent secured gold notes (in course of adjustment)[1]	3,500
United States first Liberty loan	200
United States second Liberty loan	100
United States third Liberty loan	10,150
United States fourth Liberty loan	50
Atchison, Topeka & Santa Fe Railway Co. 5 per cent preferred stock, gift ... shares	125
American Smelting & Refining Co. 7 per cent preferred stock, gift ... shares	60
Baltimore & Ohio Railroad Co. 4 per cent preferred stock, gift ... do	125
California Electric Generating Co. 6 per cent preferred stock, gift ... shares	100
Electric Bond & Share Co. 6 per cent preferred stock, gift ... do	20

The sums invested for each specific fund or securities acquired by gift are described as follows:

Fund.	United States Treasury.	Consolidated fund.	Total.
Avery fund	$14,000.00	$27,689.80	$41,689.80
Virginia Purdy Bacon fund		48,300.00	48,300.00
Lucy H. Baird fund		1,285.58	1,285.58
Chamberlain fund		35,000.00	35,000.00
Habel fund	500.00		500.00
Hamilton fund	2,500.00	500.00	3,000.00
Caroline Henry fund		1,023.00	1,023.00
Hodgkins general fund	116,000.00	37,275.00	153,275.00
Hodgkins specific fund	100,000.00		100,000.00
Bruce Hughes fund		11,194.76	11,194.76
Morris Loeb fund		2,390.00	2,390.00
Lucy T. and George W. Poore fund	26,670.00	10,055.00	36,725.00
Addison T. Reid fund	11,000.00	4,419.00	15,419.00
Rhees fund	590.00	238.00	828.00
George K. Sanford fund	1,100.00	451.00	1,551.00
Smithson fund	727,640.00	1,429.14	729,069.14
Charles D. and Mary Vaux Walcott research fund		11,520.00	11,520.00
Total	1,000,000.00	192,770.28	1,192,770.28

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[1] Terms have been agreed upon for reconverting the notes of the Brooklyn Rapid Transit Co., and it is expected that the conversion will be made very soon.

Mr. B. H. Swales, honorary assistant curator, division of birds, has continued his contributions during the past year for the purchase of specimens for the division of birds. This year his contributions have amounted to $400.

Dr. William L. Abbott has contributed $4,000 during the past year for the purpose of continuing his researches in natural history and the collection of specimens in China. With the unexpended sum of $3,173.58, the balance remaining from the work in Australia, the total sum available for work in China has amounted to $7,173.58.

The Institution is indebted to Mr. John A. Roebling for a further contribution of $28,288.19 toward continuing researches in astrophysics by aiding the solar observing stations in Chile and the United States, and providing for publication of scientific papers, and for making meteorological investigations elsewhere.

Freer Gallery of Art.—A stock dividend of 100 per cent was declared by Parke, Davis & Co., as of record of December 18, 1922, which gives the Smithsonian Institution a total number of shares of the stock of that company aggregating 40,930, making a total for each classification as follows:

	Shares.
Curator's fund, Freer Gallery of Art	3,484
Court and grounds fund, Freer Gallery of Art	3,484
Court and grounds, maintenance fund, Freer Gallery of Art	870
Residuary legacy, Freer Gallery of Art	33,092

The Institution, as residuary legatee, also holds the following securities, acquired in settlement of the Freer estate:

Detroit Country Club, first mortgage 5 per cent bond, due January 1, 1931	$1,000
University Club, Detroit, first mortgage 5 per cent bonds, due 1923 and 1924	2,000
Great Lakes Engineering Works, first mortgage, 7 per cent bonds, due in 1928, 1929, and 1930	20,000

In my last report, I mentioned a loan which the Institution was compelled to make for the purpose of paying certain taxes. The loan has been paid during the year. The building fund is now exhausted.

The practice of depositing on time, in local trust companies, such revenues as may be spared temporarily has been continued during the past year, and interest on these deposits has amounted to $1,732.50. The income during the year for current expenses, consisting of interest on permanent investments and other miscellaneous sources, including cash balance at the beginning of the year, amounted to $67,484.16. Revenues and principal of funds for specific purposes, except the Freer bequest, amounted to $69,756.48. Revenues on account of Freer bequest amounted to $304,436.26; aggregating a total of $441,676.90.

The disbursements, described more fully in the annual report of the executive committee, were classed as follows: General objects of the Institution, $64,138.85; for specific purposes (except the Freer bequest), $44,291.25; temporary advances for field expenses, etc., in excess of repayments, $12,769.17; expenditures pertaining to the Charles L. Freer bequest, $251,446; cash deposited on time, $57,500; and cash balance on hand, June 30, 1923, $11,531.63.

The following appropriations were intrusted by Congress to the care of the Smithsonian Institution for the fiscal year 1923:

International Exchanges		$45,000
American Ethnology		44,000
International Catalogue of Scientific Literature		7,500
Astrophysical Observatory		15,500
National Museum:		
Furniture and fixtures	$20,000	
Heating and lighting	73,000	
Preservation of collections	312,620	
Building repairs	10,000	
Books	2,000	
Postage	500	
		418,120
National Gallery of Art		15,000
National Zoological Park		125,000
Increase of compensation		109,044
Printing and binding		77,400
Total		856,564

RESEARCHES AND EXPLORATIONS.

In the Institution's work in the "increase and diffusion of knowledge," scientific exploration and research expeditions in the field play an important part. There has been even more than the usual activity in this phase of the work during the past year, the Institution and its branches having initiated or taken part in 22 separate expeditions in widely scattered parts of the earth, representing many branches of science. The very limited funds of the Institution available for this important work make it necessary each year to forego opportunities to send out or join forces with other scientific organizations in expeditions which would result in valuable information and material for study and exhibition to the public in the National Museum. I will mention here only a few of the expeditions in the field during the past year, in order to show the nature and scope of the work, referring to the appended reports on the National Museum, Bureau of American Ethnology, and other branches of the Institution for accounts of the explorations undertaken by them.

GEOLOGICAL EXPLORATIONS IN THE CANADIAN ROCKIES.

My geological field work in the Canadian Rocky Mountains, described in previous reports, was continued during the past year, special attention being given to securing evidence bearing on the pre-Devonian formations north of the Bow Valley, Alberta, and south along the new Banff-Windermere motor road. Difficulties were encountered during the first part of the season, owing to dense forest-fire smoke and unsatisfactory trail men, but during August and September conditions were greatly improved and the work was pushed vigorously.

A fine section of pre-Devonian strata was studied and measured in the upper part of Douglas Lake Canyon Valley, and many photographs were secured. The measured geologic section was from the base of the Devonian, above Lake Gwendolyn, across the canyon to the deep cirque below Halstead Pass, where the great Lyell limestone forms the crest of the ridge. The section includes the Ozarkian Mons formation down to the Lyell formation of the upper Cambrian.

Going south from the Bow Valley, camp was next made on the Kootenay River, about 6 miles below the mouth of the Vermilion River. The Kootenay Valley is broad and deep, with the high ridges of the Mitchell Range on the east and the Brisco Range on the west. The limestones and shales of both ranges are upturned and sheared and faulted, making it very difficult to work out the structure and the complete stratigraphic succession of the various formations. The Silurian limestones, with their fossil coral beds above the white quartzite of the Richmond transgression, were found in the upper portion of Sinclair Canyon, and not far away black shales full of Silurian graptolites. Lower down the canyon thin bedded gray limestone yielded fossils of the Mons formation.

It is evident that in the ancient and narrow Cordilleran Sea, that extended from the Arctic Ocean 2,000 miles (3,218 km.) or more south, between the coast ranges of the time and the uplands of the central portion of the North American continent, there was a similarity of Lower Paleozoic marine life along the shores and its shallow waters. Evidences of this and of strong currents and persistent wave action occur all the way from central Nevada to Mount Robson, in British Columbia. The record of the marine life and deposits of mud and sand is most complete.

PALEONTOLOGICAL FIELD WORK IN TENNESSEE.

Dr. R. S. Bassler, curator, division of paleontology of the United States National Museum, spent six weeks in June and July in a continuation of stratigraphic and paleontologic studies begun a year before in the central basin of Tennessee, in collaboration with the

Tennessee State survey. In 1921 the study and mapping of the Franklin quadrangle, an area of about 250 square miles just south of Nashville, was well advanced, and this year it was brought to completion and data secured for the preparation of a geological report upon the area, to be published by the State. Stratigraphic studies were then undertaken in contiguous areas, in which Doctor Bassler was joined by Doctors Ulrich and Mesler. The classic section at Nashville, in which the proper delimitation of the formations has long been in dispute, was studied with especial care, and large collections of fossils were secured to verify the stratigraphic results.

Regarding this section, Doctor Bassler says:

> The deep-sea origin of all limestones has long been taught in spite of the trend of evidence that many limestone formations were laid down in shallow seas. The shallow-water origin of limestone is well illustrated in the section of Ordovician strata exposed near the blind asylum at Nashville, which has been studied by several generations of geologists. At the base of this section is the Hermitage formation, which was evidently formed along ancient shore lines because it is composed of beach-worn fragments of shells and other fossils. Above this comes the Bigby limestone, the source of much of the Tennessee brown phosphate, and which also is made up almost entirely of the comminuted remains of fossils. Next is the Dove limestone, an almost pure, dove-colored, lithographic-like limestone which shows its shallow-water origin in the worm tubes penetrating it and its sun-cracked upper surface. A slab of this limestone a foot thick, now on exhibition in the National Museum, well illustrates the polygonal upper surface and the penetrating worm tubes, both features indicative of the origin of the rock on old mud flats which were periodically above water and thus became sun cracked. The succeeding Ward limestone is of the more typical blue variety, but here the rock is filled with millions of fossil shells which, under the influence of weathering, are changed to silica and are left free in great numbers in the soil. This section is only a portion of the entire geological sequence at Nashville, but it well illustrates the various types of limestone outcropping throughout the central basin.

EXPEDITION TO EXAMINE THE NORTH PACIFIC FUR SEAL ISLANDS.

Dr. Leonhard Stejneger, head curator of biology in the United States National Museum, was detailed at the request of the Department of Commerce, to accompany an expedition to Alaska and adjacent regions during the summer of 1922 to ascertain the status of the fur seal herds in the North Pacific Ocean since their protection through the treaty of 1911 between the United States, Russia, Japan, and Great Britain. The first seal rookeries visited were those of the Pribilofs, where the increase in number of seals on the beaches is very remarkable, and Doctor Stejneger predicts a complete restitution of the fur seal herd to its former maximum for the not distant future. A new method of stripping the skin from the dead seal and subsequent cleaning of the skin was being adopted on an extensive scale and was found to be a great improvement over the old method.

On Bering Island of the Commander Islands, the next stop of the expedition, conditions were quite the reverse of those on the Pribilofs. The south rookery had long since ceased to exist and the great north rookery had been greatly reduced. On his last visit to this rookery in 1879, Stejneger had estimated the number of breeding seals there at 30,000. At the time of the present visit, there were scarcely 2,000 left.

The expedition next visited the Japanese fur seal island usually known as Robben Island in the Okhotsk Sea. Here the number of fur seals has gradually increased until now they occupy not only the entire eastern beach but are extending the rookery at both ends on to the west side of the island. The Japanese have followed closely the methods employed in managing the American seal herd on the Pribilofs, and the result is most instructive in showing conclusively that " protection does protect." Important information regarding the Russian fur seal islands was obtained from Mr. Koltanovski and Colonel Sokolnikof, and from Yokohama Doctor Stejneger took passage back to the United States, having completed the inspection of the fur seal rookeries.

BOTANICAL EXPLORATION IN COLOMBIA.

From April to October, 1922, Dr. Francis W. Pennell, of the Philadelphia Academy of Natural Sciences, and Mr. Ellsworth P. Killip, of the National Museum, carried on botanical exploration in the Republic of Colombia. The expedition was organized by several institutions as part of a general plan for the botanical study of northern South America. Financial assistance was also given by Mr. Oakes Ames, who was especially interested in the orchids of the region.

Entering the country at Buenaventura on the Pacific side, the expedition established headquarters at La Cumbre in the Western Cordillera, for the purpose of studying the vegetation of the central part of this range. Descending to the city of Cali, the party proceeded up the Cauca Valley to Popayán, and from this point explored the southern portions of both the central and western Cordilleras. Later the expedition visited Salento, in the northern part of the Central Range, and Ibagué and Bogotá, collecting material at historic localities along the Quindiu Trail. Approximately 7,200 members were collected, sufficient material being secured to make up equal sets for each of the institutions represented in the expedition.

In his report on the work, Mr. Killip says:

> As might be expected from its physiography, the vegetation of Colombia is extremely diverse. Within a few miles may occur a luxuriant tropical flora, the more open woods of the temperate zone, and the low alpine growth familiar on our American mountain tops. Again, as in the Dagua Valley, one may ride through a dense rain forest, filled with ferns, mosses, and aroids, to emerge

suddenly in an arid desert-like region, where cacti and acacias are the conspicuous plants.

So inadequately known is the flora of Colombia that even along the regular routes of travel many species are found that are either new, unrepresented in American herbaria, or known only from specimens preserved in European collections.

The botanical collection resulting from this expedition is one of the largest and most important ever obtained in Colombia.

EXPLORATION OF THE PALEOLITHIC REGIONS OF FRANCE AND SPAIN.

During September, 1922, Mr. M. W. Stirling, of the National Museum, explored the paleolithic regions of southern France and northern Spain. Besides visiting all of the important sites where remains of ancient man have been discovered, the expedition entered a great many caves previously unknown to science. Regarding the great promise of the region for archeological work, Mr. Stirling reports as follows:

> The idea has become prevalent in America that this region has been practically exhausted archeologically. Although the previous existence of paleolithic man in this locality has been known for half a century, it may be truly said that the work of exploration has hardly begun.
>
> The habitations of the Stone Age are closely linked with the limestone formation which overlies large areas in this part of Europe. These may be said to fall into two classes, i. e., rock shelters and caverns. The former are undercuts in the limestone made by the rivers in the early Pleistocene or late Pliocene. A general elevation of the land has caused the streams to deepen their channels, thus leaving the undercuts well above the surface of the water. These were utilized as dwelling places by paleolithic man and in many instances were artificially modified. There are literally miles of relic-bearing deposits of this class that have not yet been touched. The possibilities in this field are very great.
>
> The caverns of the Dordogne region are for the most part comparatively small, while those in the department of Arriege are immense caves of a most spectacular nature. Of the former class are the grottoes of Font du Gaume, Combarelles, La Mouthe, Marsoulas, Montesquieu, and others. Of the latter class are the immense caves in the neighborhood of Foix, as for example, Salignac, Ussat, and Niaux. The tunnel of Mas d'Azil is the remnant of such a cave.
>
> Many of these caverns have become blocked with sediment owing to the fact that they frequently slope downward from the entrance. Messrs. Stirling and Patton entered at least a dozen such caves which had become sealed at varying distances from their mouths. The opening of such caves has heretofore been left entirely to chance. Scientific endeavor at this work should produce most fruitful results. The sealing of these caves has been a fortunate accident of nature, since the contents are by this means preserved intact.
>
> Of the regions visited, that in the neighborhood of Altamira, in Spain, and Ussat, in France, give most promise of rich returns to the archeologist.

CENTENARY OF THE BIRTH OF SPENCER FULLERTON BAIRD.

A meeting was held in the auditorium of the National Museum on the evening of February 3, 1923, to celebrate the centenary of the birth of Spencer Fullerton Baird, second secretary of the Smithsonian Institution, the virtual founder of the United States National Museum, the creator and head of the United States Fish Commission, and a prime mover in the establishment of the United States Geological Survey and the Bureau of American Ethnology. The meeting was presided over by Representative Frank L. Greene, a member of the Board of Regents of the Institution, and the following addresses were delivered: "Baird, the man," by Dr. William Healey Dall; "Baird and the Smithsonian Institution and its branches," by Dr. Charles G. Abbot; "Baird at Woods Hole," by Prof. Edwin Linton; "Baird and the Fisheries," by Prof. David Starr Jordan; and "Baird, the Naturalist," by Dr. C. Hart Merriam.

In the afternoon, preceding the formal celebration, the National Baird Memorial Committee met in the National Museum to decide upon the form of the memorial or memorials to Baird. The committee was composed of delegates appointed by 54 scientific societies and institutions from various parts of the country, with the following officers:

Honorary president, Dr. William H. Dall; president, Dr. Charles D. Walcott; vice presidents, Mr. George R. Agassiz, Dr. Alexander Graham Bell (deceased), Prof. Frank W. Clarke, Prof. Stephen A. Forbes; Prof. David Starr Jordan, Prof. Edwin Linton, Prof. Edward S. Morse, Prof. Henry Fairfield Osborn, Prof. Addison E. Verrill, and Dr. Robert S. Woodward; secretary, Dr. Paul Bartsch. At this afternoon meeting it was announced that appropriate exercises were held during the morning, when wreaths were placed on the grave of Baird in Oak Hill Cemetery, the bust of Baird in the American Museum of Natural History, the Baird memorial bowlder of the American Fisheries Society at Woods Hole, and the Baird memorial tablet at the Bureau of Fisheries building in Washington, and that the mayor of Reading, Pa., had been requested to decorate the house in which Baird was born.

The report of the national committee, announced at the evening meeting, is as follows:

1. That Congress be memorialized to establish in the city of Washington a museum of fisheries and oceanography, with laboratories and a public aquarium, as a memorial to Spencer Fullerton Baird.

2. That there be established a fund for the encouragement of research and exploration in the directions in which Spencer Fullerton Baird was a leader.

3. It was the sense of the meeting that the name of Baird be given to the laboratory of the Bureau of Fisheries at Woods Hole, Mass.

PRESENTATION OF BUST OF JEANNE D'ARC.

On February 23, 1923, there was presented to the Smithsonian Institution for the American people a bronze bust of Jeanne d'Arc by Madame Berthe Girardet, of Neuilly, France. This bust, accepted by your secretary on behalf of the Board of Regents of the Institution, is a gift from the sculptress through Mrs. Grace Whitney Hoff, "in memory of what the American soldiers did in France at a crucial time of need—in gratitude to the mothers, to the wives, to the sisters and sweethearts, and to all those who gave their dear ones whose blood has mingled with the soil of France." The bust is installed in the National Gallery of Art.

HAMILTON FUND LECTURE.

The Rev. James Hamilton, in 1875, placed under the administration of the Smithsonian Institution a sum of money, designated as the Hamilton fund, the interest from which is to be used for "lectures on scientific or useful subjects." Under the auspices of this fund there was delivered on April 18, 1923, an interesting lecture by Dr. Sven Hedin, the noted Swedish explorer, on his discoveries of ancient cities and manuscripts in eastern Turkestan and his latest explorations in southern Tibet. The lecture was profusely illustrated with lantern slides, and Doctor Hedin described graphically the dangers and hardships incident to a journey through the great desert regions in which he worked. The lecture, to which the Washington public was invited, had a large attendance.

DISTRICT OF COLUMBIA NATURE STUDY EXHIBIT.

Four of the foyer rooms in the New National Museum have been set aside for a local exhibit, which, it is hoped, will meet a long-felt want of teachers and students and people generally interested in the fauna and flora of the District of Columbia and its immediate vicinity.

Two of the rooms are devoted to the birds and it is intended to install a complete representation of all species reported for the District. A third room is devoted to the mammals, reptiles, batrachians, and fish of the District, while the fourth room has the commoner insects—butterflies, dragonflies, beetles, etc.—and swinging frames containing beautifully pressed specimens of local plants. It is intended to change the contents of these frames as the season advances, so that anyone wishing to know what is in flower at the particular time in question will find the specimen represented in the frame in its regular systematic position, as well as a photograph of the habitat and some detail pictures. Here, too, is installed a stereomotorgraph which alternately shows series of pictures of plants and birds, the plants as they come into flower and the birds about their nest, feeding stations, or bird baths.

Judging from the attendance which these exhibits have already called forth and the numbers of inquiries which have been made by teachers and persons interested, there is no question about the advisability of having furnished the school system and nature lovers of Washington these aids to visual education.

TWENTIETH INTERNATIONAL CONGRESS OF AMERICANISTS.

The twentieth meeting of the International Congress of Americanists, held at Rio de Janeiro, Brazil, in August, 1922, was attended by Dr. Walter Hough and Dr. Aleš Hrdlička, of the National Museum, who represented the Smithsonian Institution and were also designated by the State Department to represent the United States. Means were provided to repay the expenses of the delegates by the Carnegie Endowment for International Peace. A great many papers of scientific value were presented in several languages at the Congress, and the delegates feel that a great stimulus was given to the promotion of anthropological science, especially in Brazil.

PUBLICATIONS.

The institution and its branches issued during the year a total of 100 volumes and pamphlets, of which there were distributed 139,666 copies, including 130 volumes and separates of the Smithsonian Contributions to Knowledge, 18,801 volumes and separates of the Smithsonian Miscellaneous Collections, 25,229 volumes and separates of the Smithsonian Annual Reports, 3,016 Smithsonian special publications, 72,529 volumes and separates of the publications of the National Museum, 17,694 publications of the Bureau of American Ethnology, 816 publications of the National Gallery of Art, 1,309 volumes of the Annals of the Astrophysical Observatory, 31 reports on the Harriman Alaska expedition, and 74 reports of the American Historical Association.

Through its publications the Institution carries out one of its primary functions, the "diffusion of knowledge among men." Many of its publications are the results of scientific researches conducted by members of the staff, others are prepared by outside scientists who have carried on special investigations on the collections of the National Museum, and still others are intended for the general reader who takes an interest in the progress of science but is not benefited by the more technical papers mentioned above. In this last class comes the General Appendix to the Smithsonian Annual Report, which consists of a series of articles by authorities in the matters treated, outlining the more noteworthy and interesting advances in many lines of scientific work, including physics, chemistry, astrophysics, geology, biology, and anthropology. These are written in a style to attract the average intelligent reader, and there is a very general demand for the reports. A cataloguer in the office of the Superintendent of Documents, where all public documents are distributed, has placed the Smithsonian report first in point of number of requests from libraries to receive this publication.

The publications of the National Museum and of the Bureau of American Ethnology are mentioned in detail in the report on publications, appended hereto.

Nine papers were issued during the year in the series of Smithsonian Miscellaneous Collections, among which may be mentioned one by your secretary resulting from his geological field work in the Canadian Rocky Mountains; a timely paper by Mr. Mitman, of the Museum staff, on "Some Practical Aspects of Fuel Economy"; and a contribution from Dr. J. Walter Fewkes, chief of the Bureau of American Ethnology, on the "Designs on Prehistoric Pottery from the Mimbres Valley, New Mexico," which was fully illustrated with striking Indian designs.

Allotments for printing.—The congressional allotments for the printing of the Smithsonian reports and the various publications of the branches of the institution were practically used up at the close of the year. The appropriation for the coming year ending June 30, 1924, totals $77,400, allotted as follows:

For printing and binding the Annual Reports of the Board of Regents, with general appendixes, the editions of which shall not exceed 10,000 copies	$10,000
Under the Smithsonian Institution: For the annual reports of the National Museum, with general appendixes, and for printing labels and blanks, and for the bulletins and proceedings of the National Museum, the editions of which shall not exceed 4,000 copies, and binding, in half morocco or material not more expensive, scientific books and pamphlets presented to or acquired by the National Museum Library	37,500
For the annual reports and bulletins of the Bureau of American Ethnology, and for miscellaneous printing and binding for the bureau	21,000
For the annual report of the National Gallery of Art and for printing catalogues, labels, and blanks	1,000
For miscellaneous printing and binding:	
The International Exchanges	200
The International Catalogue of Scientific Literature	100
The National Zoological Park	300
The Astrophysical Observatory	300
For the annual report of the American Historical Association	7,000
	77,400

Provided, That the expenditure of this sum shall not be restricted to a pro rata amount in any period of the fiscal year.

Committee on printing and publication.—The function of the Smithsonian advisory committee on printing and publication is to make recommendations to the secretary regarding the technical merit and suitability of all manuscripts submitted for publication by the Smithsonian Institution or its branches, and also to consider all other matters relating to printing and binding under the institution. During the past year seven meetings were held and 104 manuscripts acted upon. The membership of the committee is as follows: Dr. Leonhard Stejneger, head curator of biology, National Museum, chairman; Dr. George P. Merrill, head curator of geology, National Museum; Dr. J. Walter Fewkes, chief, Bureau of American Ethnology; Mr. N. Hollister, superintendent, National Zoological Park; and Mr. W. P. True, editor of the Smithsonian Institution, secretary.

LIBRARY.

Much has been accomplished during the year toward better library service. The number of publications loaned during the year reached a total of 12,076, and fully as many were consulted without being taken out. A list has been prepared each day of the principal contents of scientific and technical periodicals received for the Smithsonian Deposit at the Library of Congress, and copies are circulated among the heads of scientific bureaus under the Smithsonian Institution. The subject catalogue of the Museum library has been increased by 4,400 cards, and progress has been made in the arrangement of cards of the Concilium Bibliographicum, received since the close of the war.

The third volume of the "Bibliography of Aeronautics," covering the years 1917 to 1919, inclusive, compiled by the assistant librarian of the Smithsonian Institution, Mr. Paul Brockett, was issued during the year by the National Advisory Committee for Aeronautics.

Of the 10,938 volumes and other publications added to the library, 5,719 were for the Smithsonian Deposit at the Library of Congress, 4,285 for the National Museum, and the others for the remaining libraries administered under the Smithsonian Institution.

NATIONAL MUSEUM.

While without increased financial resources it has been impossible for the Museum during the year to increase the scope of its exhibits and of their usefulness to the public, nevertheless much has been accomplished along the lines of filling in gaps in existing collections and of increasing their value through classification and arrangement. The Museum has been fortunate in being able to keep together most of its scientific staff. In many cases this has been possible only because of the devotion of the persons and their willingness to accept employment in what should be their leisure hours in order to meet living expenses. Better conditions are expected to result, however, from the passage by Congress of the reclassification act of 1923, which becomes effective July 1, 1924.

The Museum acquired during the year a total of 217,611 specimens. While numerically this is only 60 per cent as many as received during the previous year, many of the accessions are of exceptional value, either intrinsically or from a scientific point of view. The distribution of duplicate specimens, mainly to educational institutions, totaled 9,131 specimens, classified and labeled. About one half of these were in regular sets already prepared for shipment, and the other half were specially selected to meet particular needs. Nearly 35,000 duplicates, chiefly relating to botany and geology, were sent out in exchange, resulting in the acquisition of much desirable material. Over 12,000 specimens were lent to specialists for study purposes. The material received by the Museum during the year is described somewhat fully in the report of the administrative assistant in charge, appended to this report, but it may be well to here mention briefly some of the outstanding accessions. Among much material in anthropology, there may be mentioned an expressive carved stone figure from the Makah Indians; casts of the famous La Quina and Obercassel skulls and skeleton; a series of archeological specimens from Haiti; an ethnological collection from Formosa; and casts of the busts of the heretic Pharaoh, Amenophis IV, and his queen.

The biological specimens received during the year, while fewer in number, compare favorably in scientific value with those of previous years and probably are above the average. Perhaps the outstanding accession in biology was the Evezard collection of recent mollusks presented by the late John B. Henderson, while another of great scientific interest is the series of Opalinid ciliate infusorians prepared by Prof. Maynard M. Metcalf. A significant feature of the year's accessions is the fact that some of the most important are from China as a result of a deliberate effort to improve systematically the study material from the palearctic region which is of fundamental importance for a full understanding of our North American fauna. Several expeditions from which biological material may be expected to come to the Museum are now in the field in China. A number of other expeditions to South America and elsewhere during the year have resulted in much valuable material, the National Herbarium especially being enriched. Striking new exhibits in the department of biology include several species of Australian mammals, a Malay tapir, and a gorilla collected in French Congo by Mr. Aschemeier, of the Museum staff. The scientific staff has continued to carry on research work on the study collections, resulting in the publication of many papers in the various Museum series. The total number of specimens of animals and plants now in the Museum collections is estimated to exceed 7,000,000.

Among the important accessions in the department of geology may be mentioned the valuable paleontological collection of the late Orestes St. John, consisting principally of fossil fishes, donated by Dr. Frank Springer, and a collection of not less than 10,000 specimens, mainly fossil plants, presented by the heirs of the late R. D. Lacoe, of Pittston, Pa. The residuary portion of the meteorite collection of the late Prof. H. A. Ward was presented by Mrs. Coonley Ward, and 13 additional accessions of meteorites were received. A number of important mineralogical specimens were acquired during the year, largely through exchanges, including a large boulder of jade received from Col. W. B. Thompson and a fine specimen of crystallized descloizite from southwest Africa. Several unusual cut gems were purchased through the Chamberlain endowment fund. An important phase of the work of the department of geology consists in furnishing assistance to schools and students, chiefly through the distribution of materials needed in their studies. Eighty-one educational institutions were thus aided during the year.

The collections of textiles, wood technology, organic chemistry, foods, and medicine, all under the supervision of the curator of textiles, received many valuable specimens, numbering over 2,000. Among the most important of these are a large series of specimens of pyralin, bakelite, condensite, and cellulose acetate, all substitutes for natural raw materials, such as ivory, bone, horn, tortoise shell, amber, etc., the supplies of which are growing scarcer every year; beautiful specimens of silks, woolen fabrics, and mohair upholstery textiles; an exhibit showing the process of manufacture of double-tipped matches; and specimens showing the use of chaulmoogra oil derivatives in the treatment of leprosy in Hawaii.

In the divisions of mineral and mechanical technology, graphic arts, and history, an unusually large and valuable series of objects have been accessioned during the year. The divisions of mineral and mechanical technology, in their conservation program, cooperated with Mr. S. S. Wyer in preparing a work under the title "The Smithsonian Institution's Study of Natural Resources Applied to Pennsylvania's Resources," which was distributed free to school teachers throughout Pennsylvania and used in certain courses in the grade schools. Seven loan exhibits shown in the division of graphic arts brought the division prominently before the local public, and two traveling exhibits prepared in the division were shown in various cities. The division of history received, besides several other important accessions of military, naval, and antiquarian material, the entire collection of numismatic material formerly exhibited in the

United States mint in Philadelphia, transferred to the Museum owing to the closing of the mint to the public.

A number of field expeditions in which the Museum was interested resulted in greatly enriching the collections in all departments, though mainly in biology and geology. These expeditions are described in the report on the Museum appended hereto. The usual large number of meetings, congresses, and receptions were held in the auditorium and rooms of the Natural History Building. Visitors to the Natural History Building totaled 508,518, to the Arts and Industries Building, 259,542, to the Smithsonian Building, 95,168, and to the Aircraft Building, 42,904. The Museum published during the year 10 volumes and 42 separate papers, of which there were distributed a total of 72,529 copies.

NATIONAL GALLERY OF ART.

In the National Gallery, the year has seen substantial advance in a number of directions, although additions to the art collections have not been so numerous as in several previous years. The time of the staff has been devoted largely to the receipt, installation, and care of the collections; to completing the records and labeling; and to the preparation of matter for publication for the purpose of arousing interest in the National Gallery, especially in its vital need of a gallery building. A recent act of Congress authorizes the raising of funds for a National Gallery Building and provides a site in the Smithsonian Park for its erection, and the gallery has made every effort during the year to bring forcibly to the attention of the public the urgency of providing a suitable building to take care of the growing national art collection and to offer better inducements to prospective donors to the Nation of valued art material. Furthermore, there must be in America a National Gallery of Art Building if we are to take a respectable place among the civilized nations of the world in the field of art, and the director of the gallery has endeavored in several published articles to make known this national shortcoming and to stir the pride of a people not accustomed to take a second or third place in any field worthy of their ambition.

The National Gallery Commission held its second annual meeting on December 12, and numerous important problems connected with the work of the gallery and with its future were considered. Following the reports of committees, a new committee was appointed to look after the gallery's interests in the final disposition of purchases made from the Ranger bequest fund.

The 21 portraits of distinguished leaders of America and other allied nations in the war with Germany, painted by a number of leading American painters under the auspices of the National Art

Committee, have now returned to the National Gallery and will remain on permanent exhibition, after having been displayed in 25 of the larger cities through the offices of the American Federation of Arts.

The gallery received by gift during the year a number of paintings and other art works, and several interesting collections were loaned, among them the famous McFadden Collection of 43 portraits and landscapes of the British School, which is deposited in the gallery pending its permanent housing by the city of Philadelphia. Several special exhibitions were held in the gallery, including an exhibition of American Handicrafts assembled and circulated by the American Federation of Arts, and a collection of antique Etruscan, Greco-Roman, and Byzantine jewelry, ancient glassware, and pottery exhibited under the auspices of the Archæological Society of Washington.

The first catalogue of collections to be issued since the establishment of the gallery as a separate unit appeared during the year. The catalogue contains an account of the development of the art interests of the Smithsonian Institution and an outline of the organization of the gallery, followed by a list of the art works with brief biographies of the artists, and is illustrated with 25 plates of certain of the most noteworthy paintings and sculptures in the gallery.

FREER GALLERY OF ART.

The examination, classification, and preliminary cataloguing of Chinese and Japanese stone sculptures and jades, begun in 1922, was completed during the year. New work begun includes the preliminary cataloguing and final storage of Chinese and Japanese bronzes, lacquers, and wood sculptures, Near Eastern and Egyptian pottery, and miscellaneous objects of bone, ivory, metal, glass, etc. The autumn, winter, and early spring were largely devoted to the installation of exhibits and preparations for the formal opening of the gallery to the public on May 2, 1923.

For the opening week, there were issued 3,300 invitations, and the gallery was then opened to the public. From May 9 until the end of the period covered by the report of the gallery, June 30, the total attendance was 32,648. Beginning June 11, the building was closed on Mondays, making the exhibitions available on Sundays to many people who are unable to come on week days.

The field work of the gallery included a trip to Europe by Miss Guest to attend as a delegate from the gallery the meetings of the Société Asiatique de Paris, held in Paris from July 10 to 13, following which she devoted two months to a study of various collections of Oriental art in France, England and Germany. On February 12, Mr. Bishop, of the gallery staff, left for China, in charge of an archeological expedition sent out under the joint auspices of the Freer Gallery of Art and the Museum of Fine Arts, Boston. Up to the close of the year, Mr. Bishop's chief concern was with matters of organization, which he has now settled very successfully. He also visited several sites of great archeological interest and made observations of importance to the future work of the expedition.

BUREAU OF AMERICAN ETHNOLOGY.

The chief has endeavored to expend in the most economical manner the funds appropriated by Congress for "continuing ethnological researches among the American Indians and the natives of Hawaii, etc.," although considerable difficulty has been encountered owing to the greatly increased cost of field work and maintenance. There has been a great awakening of interest in matters concerning the aboriginal inhabitants of America, and never before has there been such a general demand for the published works of the bureau. The great archeological discoveries in Egypt have created a new popular interest in the Science of Man, and the chief is endeavoring to meet this situation by increasing the output of the bureau in the form of popular publications in addition to the usual technical works. The past year's work includes archeological and historical study of the Indians as well as work on documentary history. Somewhat detailed accounts of the various researches carried on during the year are contained in the report of the chief of the bureau, Appendix 4 of this report, so that it will here be necessary only to indicate the character and scope of the work.

From July to September, 1922, the chief completed the excavation and repair of Pipe Shrine House on the Mesa Verde National Park, Colorado, begun the previous year. This exceptional ruin is now open for the inspection of visitors to the park. He also excavated and repaired Far View Tower, an instructive circular ruin with three subterranean kivas, probably an outlook for observation of the sun and ceremonies connected with the sky god. In June, 1923, the chief visited various localities in the neighborhood of Deming, southern New Mexico, for the purpose of examining and obtaining specimens of a beautiful form of prehistoric Indian pottery which had been discovered in that region. The remarkable pictures on this pottery throw considerable light on the ethnology of an ancient people of whom we would otherwise have practically no knowledge.

Dr. John R. Swanton completed three manuscripts for publication during the year, besides carrying on important linguistic and ethnological researches in the office. Dr. Truman Michelson began the year conducting ethnological researches among the Fox Indians of Iowa, where he collected sufficient material for a manuscript on the origin of one of the Fox societies. Tribal dissensions cut short Doctor Michelson's stay among the Fox and he undertook a reconnaissance among the Potawatomi of Wisconsin, the Chippewa at Reserve in the same State, the Ottawa of Michigan, the Delaware-Munsee of Lower Canada, and the Montagnais of Lake St. John. In May, 1923, he left for the field to make a reconnaissance of the Algonquian tribes of eastern United States and Canada, including the Labrador peninsula.

Mr. John P. Harrington prepared several manuscripts for publication during the year, and carried out linguistic researches with Mr. Cipriano Alvarado, a Quiché Indian of Guatemala. In May, 1923, Mr. Harrington went to Santa Barbara, Calif., for the purpose of continuing his researches on the Indians of that State. He secured a large quantity of manuscript material bearing on myths, place names, historical notes, early life and customs, genealogies, and Indian songs. He also participated in the excavation of the famous Burton Mound on the beach at Santa Barbara, which resulted in the discovery of a great mass of Indian skeletons, trinkets, and utensils. Mr. J. N. B. Hewitt completed two manuscripts for publication, and in May, 1923, left for ethnological field work among the Six Nations of Iroquois near Brantford, Ontario, Canada, where he elaborated and revised texts recorded there previously and also recorded much valuable information relating to the institutions of the league. Later he visited the Onondaga Reservation near Syracuse, N. Y. Mr. Francis La Flesche was engaged during most of the year in assembling his notes for the third volume of his work on the Osage Tribe.

The report on the bureau then discusses, under special researches, the work of Miss Frances Densmore on the Indian music of the Yuma, Mohave, and Papago Tribes; the archeological investigations by Mr. W. E. Myer of ancient Indian mounds in central Tennessee; archeological work on the Stratman cave in Maries County, Mo., by Mr. Gerard Fowke; and field studies by Mr. John L. Baer on the banner stones and pictographs in the Susquehanna River region, Pennsylvania.

The bureau published during the year two annual reports with lengthy accompanying papers, and two bulletins. Several other publications were in press at the close of the year. Of the bureau series, there were distributed during the year a total of 17,694 copies.

INTERNATIONAL EXCHANGES.

The total number of packages of scientific and governmental publications sent abroad and received from foreign agencies for distribution in this country during the year was 377,826, weighing

492,816 pounds. This is a decrease in number of packages and in weight from the previous year, owing partly to the smaller size of the publications handled this year. These publications were forwarded in 2,223 boxes, in addition to which 40,000 packages were sent direct to their destinations by mail whenever a sufficient quantity for box shipments had not accumulated when the regular monthly consignments were forwarded.

Exchange relations were resumed with Roumania during the year, the Institutul Meteorologic Central at Bucharest acting as the official Roumanian exchange bureau. Conditions in Russia and Turkey had not sufficiently improved at the close of the year to warrant the establishment of official exchange bureaus in those countries, but the Institution has arranged with the American Friends Service Committee to forward to Russia the large accumulation of exchange material for correspondents in that country. Seventy boxes were thus forwarded to Russia during the year. The State Library (Riigiraamatukogu), Reval, was designated as the exchange agency for Esthonia.

There were sent to depositories abroad during the year 57 full sets of United States official documents and 38 partial sets, and the Congressional Record was exchanged with 44 establishments abroad.

NATIONAL ZOOLOGICAL PARK.

The actual number of animals on exhibition at the close of the year was greater than in any previous year, and the scientific value of the collection is greater than ever before. For the fourth successive year the number of visitors to the park has exceeded 2,000,000, and its value in natural history instruction is again shown by the fact that 171 schools, classes, and other organizations visited the park during the year, with a total of 14,185 individuals. Friends of the park have been even more than usually generous in presenting animals, 266 specimens having been thus added during the year. Of special interest among these may be mentioned a number of desirable animals presented by Mr. Victor J. Evans, including specimens of the frog-mouth and New Guinea fruit pigeon; valuable collections of South American animals contributed by Hon. Henry D. Baker and Mr. William J. LaVarre; a collection of animals presented by Mr. Gordon MacCreagh, including the rare red ouakari monkey and the matamata turtle; and a number of interesting animals from southern Mexico collected by Dr. William M. Mann.

At the close of the year there were in the collections a total of 1,768 animals, an increase of 87 over the previous year. This total represents 498 different species, including 184 species of mammals, 271 of birds, and 43 of reptiles. There were born or hatched in the park during the year 80 mammals and birds, while the death rate has again been kept at a very low mark. Sixty-six surplus mammals and birds were sent away in exchange to other zoological gardens, which resulted in securing some very desirable specimens for the park.

Among the improvements undertaken during the year the superintendent's report mentions the complete reconstruction of the wolf and fox dens below the sea-lion pool, making the quarters for these animals much more comfortable and sanitary and greatly improved in appearance. The principal construction during the year was the continuation of the grading of the area left vacant through the changing of the main automobile road through the park. Here will soon be available a large area of flat ground, on which paddocks are being completed for Rocky Mountain goats, red deer, barasingha deer, and Japanese deer, Indian buffaloes, tahr goats, aoudads, axis deer, and similar species. The outdoor cages for rhesus and other monkeys were all repaired, repairs to the ostrich inclosure were made, and safety guards placed along the fence in front of the main bear dens. The principal needs of the park, as enumerated by the superintendent, are a suitable restaurant building, which has been urged for many years, a new bird house to replace the old temporary one, which is far too small and in very bad condition, and the establishment of a reasonable fund to enable the park to grasp the occasional opportunities offered to secure rare and desirable animals which otherwise it is impossible to obtain.

ASTROPHYSICAL OBSERVATORY.

The observatory now occupies a number of frame structures south of the Smithsonian Building, at Washington; a cement observing station and frame cottage for observers on Mount Wilson, Calif.; an observing station at Montezuma, Chile; and a new observing station on Mount Harqua Hala, Ariz.; the last erected from funds donated for the purpose by Mr. John A. Roebling, of New Jersey. At Washington no observations were attempted, but as much time as possible was devoted to computations necessary to the following:

(1) The search for systematic errors in the work of Mount Harqua Hala, Ariz., and the application of carefully determined corrections thereto.

(2) The publication of a comparison of two years of observations at Mount Harqua Hala, Ariz., and Mount Montezuma, Chile.

(3) The preparation of a new set of curves for use from January 1, 1923, in the short method of solar constant determination at Montezuma, Chile.

(4) The search for systematic errors and the application of carefully determined corrections to Montezuma results on the new basis.

(5) The reductions of observations made at Mount Wilson in 1922 on the form of the solar spectrum energy curve and on the spectrum energy curves of 10 of the brighter stars.

This large computing program has resulted in putting the two stations on an equal footing in every possible way.

At Mount Wilson the director and Mr. Aldrich redetermined the form of the solar spectrum energy curve, varying the procedure as far as possible so as to get several independent checks on the results. They also accomplished the difficult task of the observation of the prismatic energy spectrum of 10 of the brighter stars in the focus of the 100-inch reflector on Mount Wilson. The results of both of these researches were published in the Smithsonian Miscellaneous Collections, volume 74, No. 7, 1923.

The two observing stations at Mount Harqua Hala, Ariz., and Mount Montezuma, Chile, have continued in operation throughout the year, and the results have been very numerous. They had not been critically compared at the close of the year.

The work on solar radiation, begun in 1903, has been steadily improved, until with the continuous year-round occupation for two years of two first-rate observing stations the decisive test has been made, proving the substantial character of solar variation. In short, the director believes that there is no longer a reasonable doubt that the sun varies or that the observations can reveal these variations satisfactorily. It is now a question for meteorologists whether these variations are of importance in weather forecasting.

Just after the close of the fiscal year some preliminary observations were made on changes in the appearance of the sun accompanying changes in the output of radiation. Two years of record prints from direct photographs and spectroheliograms of the sun made at the Mount Wilson Solar Observatory were compared with the corresponding two-year records of solar radiation, and there were established four general rules or principles connecting the solar radiation with the sun's visible appearance.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

In the report of the Regional Bureau of the International Catalogue of Scientific Literature for 1922 attention was called to an international convention to be held at Brussels during July, 1922, to consider the affairs of the catalogue and to the proposals to be submitted by the Smithsonian Institution. It is satisfactory to be able to report that at this convention these proposals formed the basis of the resolution whereby all the countries represented agreed to keep alive the various regional bureaus until international affairs would allow reorganization and resumption of publication. There appears to be no question of the need of an international bibliography of science and of international cooperation in its production; therefore as the International Catalogue of Scientific Literature is the only such organization in existence it is the logical foundation on which to base future operations, whether these operations are to be aided through private endowments or official guarantees.

NECROLOGY.

ALEXANDER GRAHAM BELL.

Alexander Graham Bell, a regent of the Smithsonian Institution from 1898 to 1922, died at his summer home in Nova Scotia on August 2, 1922. Doctor Bell, best known for his invention of the telephone, was born in Edinburgh, Scotland, in 1847, and was educated at Edinburgh and London universities. He later received many honorary degrees from universities in this country and abroad. A patent was granted on March 17, 1876, for his invention of the telephone, and in 1883, with C. A. Bell and Sumner Taintor, he invented the graphophone. His many other notable inventions for the benefit of mankind include the photophone, induction balance, and telephone probe for painless detection of bullets in the human body.

He was deeply interested in the subject of deafness and its correction, and founded and endowed in 1887 the Volta Bureau for the increase of knowledge relating to the deaf. He was the author of many scientific and educational monographs.

Doctor Bell occupied a prominent place in the affairs of the Smithsonian Institution during the 24 years of his membership on the board of regents, serving continuously from the time of his appointment to the board as a member of its executive committee.

The loss of his active interest and sound advice will be deeply felt by the institution.

JOHN BROOKS HENDERSON.

John Brooks Henderson, regent of the Smithsonian Institution since 1911, died January 4, 1923, at the age of 53. Mr. Henderson was early attracted to scientific work and shortly after his graduation from Harvard undertook his first expedition to the West Indies in quest of land mollusks. These, together with marine mollusks, he made his special study, and in the course of his work he made many collecting trips to the greater and lesser Antilles. His first paper on mollusks was published in 1894, and in the succeeding years his contributions on this subject appeared in various journals and in the publications of the United States National Museum. As a result of his expeditions many thousands of valuable specimens have been added to the museum collections.

As a regent of the institution, Mr. Henderson took a keen and active interest in all its affairs. During the year preceding his death he served on the executive committee of the board of regents.

HENRY N. SPOTTSWOOD.

Henry N. Spottswood, employed by the institution in various capacities since 1889, died on December 1, 1922. Coming to the institution as copyist in the National Museum and promoted through various grades to clerk in the international exchange service, Mr. Spottswood served the institution efficiently for over 33 years.

Respectfully submitted.

Charles D. Walcott, *Secretary.*

APPENDIX I.

REPORT ON THE UNITED STATES NATIONAL MUSEUM.

SIR: I have the honor to submit the following report on the operations of the United States National Museum for the fiscal year ending June 30, 1923.

Much has been accomplished this year along long-established lines of endeavor. Without increased financial resources to grasp the many opportunities for widening the scope of the exhibits and of their usefulness to the public, efforts were mainly concentrated on filling gaps in existing collections and on increasing their value and usefulness through classification and arrangement, the two primary objects of the Museum as given in the fundamental act. The Museum has continued, as in the past, to be greatly aided in this work by workers in other governmental departments. For instance, the Museum pays for the services of but three persons in connection with the vast insect collection. However, this collection has had during the year most of the time of 15 entomologists and a fluctuating number of preparators—usually about 25 persons in all. With so many workers great progress has been made in studying and arranging the collection. Here, as elsewhere in the Museum, progress was retarded to a certain extent by lack of supplies, which the Museum is unable to furnish with its very limited maintenance fund.

The organization of the Museum has been but slightly changed. In August, 1922, the old collections of animal and vegetable products were combined in a new section of organic chemistry in the department of arts and industries, and an aid for that section was added to the scientific staff.

An exchange of collections was made between two divisions of the Museum on July 1, 1922, by which the division of history took over the custody of the small arms collection in the northwest court of the Arts and Industries Building, which has been built up by the division of mechanical technology, and the latter relieved the division of history of the aircraft collection exhibited in the Aircraft Building.

Great difficulty has been experienced in maintaining the quota of watchmen necessary for guarding the buildings. The conditions under which the watchmen are required to work here are more onerous and exacting than in any other bureau of the Government. With the funds at present available it has not been possible, especially since the Natural History Building has been opened on Sundays, to grant the watchmen time off in lieu of Sundays and holidays. This is done in some of the Government departments and every effort is being made to secure the additional funds needed to make the watch service in the Museum as attractive as elsewhere.

The Museum has, however, been fortunate in being able to keep together most of its trained workers on the scientific staff. In a number of instances this has been possible only because of the devotion of the persons and their willingness to accept employment in what should be their leisure hours, in order to meet their current expenses. This spirit of loyalty and devotion to the Museum is appreciated.

A better era is anticipated. Nothing in the past has had a more vital relation to the work of the Museum than the enactment by Congress, on March 4, 1923, of the classification act of 1923, for a more adequate pay schedule for the civilian employees of the Government, with provisions for equal pay for equal services regardless of the department in which the service is rendered. This reclassification becomes effective on July 1, 1924, before which date much preliminary work has to be completed. The writer was appointed liaison officer for the Government bureaus under the institution. Tentative allocations of all the positions under the institution were made during the latter part of the year and submitted to the personnel classification board created to care for the matter.

The year just closed was the second under the operation of the Budget system of estimates and appropriations, and necessarily involved changes in many methods of planning and keeping accounts. Operating as it has had to do on practically the same appropriations for the past 10 or 15 years, the Museum has difficulty in making ends meet, and it is only by rigid economy and by the omission of many things that should be done that the year ends without a deficit.

The function of the National Museum as the depository of the collections belonging to the United States is being recognized more and more, resulting, near the close of the fiscal year, in the transfer to the Museum by the Treasury Department of the entire collection of numismatic materials which the Government, up to a few years ago, exhibited at the United States Mint in Philadelphia. Congress also reaffirmed this function of the Museum in accepting the sword of Maj. Gen. Richard Montgomery of the Continental Army, given to the Nation by Miss Julia Barton Hunt, by directing that it be deposited in the National Museum.

At the annual meeting of the American Association of Museums in Charleston in April, 1923, the financial prospects were such that arrangements were made for the establishment of headquarters in the National Capital, with a salaried director and secretary, Prof.

Charles R. Richards and Mr. Laurence Vail Coleman, respectively. The National Museum gave support to the movement by permitting the association to have its offices in the Arts and Industries Building. Toward the end of the year headquarters of the association were accordingly established on the third floor of the northwest pavilion of that building. Professor Richards is spending his first year on leave in order to make a survey of European museums, and Mr. Coleman is in charge as acting director.

Three small rooms off the foyer in the Natural History Building, which have been held exclusively for use of temporary loan exhibits—usually in connection with gatherings in the auditorium—were this year assigned to the department of biology for the display of the animals of the District of Columbia. These collections, which for lack of room had been scattered in various halls or stored away, are now brought together and made available for students, amateurs, and school children of Washington.

In the Arts and Industries Building a new exhibition hall was prepared and opened to the public during the year, being a small room on the second floor of the southeast range. Here is shown an attractive display of historical relics received from the Military Service Institution, including the famous horse owned by Gen. Phil Sheridan.

BUILDINGS AND EQUIPMENT.

The National Museum, in its own buildings and in the Smithsonian Building, occupies an aggregate floor space of over 670,000 square feet, or over 15½ acres, with roof area of approximately 5¾ acres, and some 2,000 windows. The upkeep is necessarily considerable, especially when it is recalled that the Smithsonian Building has been erected nearly 70 years, the Arts and Industries Building about 43 years, and the so-called South Shed about 25 years. The other structures are more recent, the Natural History Building being about 14 years old and the Aircraft Building about 6. Most of the space is used for exhibition purposes and must at all times be kept in good repair and in sightly condition. Constant vigilance is necessary to properly maintain these buildings within the appropriation allotted for the purpose, and it is only by strict economy that the present satisfactory results are accomplished.

Early in the year an emergency arose, namely, the falling of large pieces of plaster from the ceiling under the dome of the rotunda in the Arts and Industries Building, which necessitated the expenditure of 40 per cent of the entire appropriation provided for the maintenance of the buildings.

In the Natural History Building the most extensive repairs consisted of painting the east and west hall attics, the watchmen's room on the first floor, and tin gutters of roof, and the replacing of worn-out down spouts. The water table outside this building and the roadways on the south, east, and west sides of it were repaired. Measurements made this year show that the movement of the keystones of the stone arches in the rotunda has been but very slight. Observations and measurements will, however, continue to be made at intervals of a few months. The most important item in the Smithsonian Building was the repairing of a broken metal finial on top of the tower at the northwest corner of the main building.

Through the courtesy of the Commissioners of the District of Columbia and the cooperation of the fire department, the exterior walls of the Natural History Building were thoroughly washed in August, 1922, materially improving the appearance of the building. In attempting to get water for this purpose, the fire department discovered that all of the fire hydrants in the Smithsonian Park were in bad condition and of an antiquated type, leaving the buildings practically unprotected in case of fire. The District Commissioners called the attention of the Institution to the necessity of installing new hydrants and of adding to their number. An estimate to cover the installation of four new fire plugs in the Smithsonian Park was included in the estimates submitted by the Institution to the Bureau of the Budget in September, 1922. The estimate failed to receive favorable action, but will be again submitted for consideration. The fire plugs in all the buildings and the fire hose are tested regularly.

As usual, the power plant was not operated during the summer, a commercial company supplying the light and power required. While the plant was shut down the old feed-water heater, which had been in use ever since the plant was first put in operation, was replaced by a new Cochran open feed-water heater and meter, effecting a marked saving in the consumption of fuel. During the year 3,052 tons of bituminous and 15.5 tons of stove coal were consumed. Heat was supplied the buildings in the Smithsonian group, including the Freer Building, from October 9, 1922, until May 19, 1923. The total electric current generated was 376,293 kilowatt hours. The electric load was greatly increased by the opening of the Freer Building to the public, near the close of the year, so that on dark and cloudy days it is greater than can be safely carried on the cables leading into the Natural History Building from the lines of the Potomac Electric Power Co. Additional cables will have to be installed to take care of this increase. The ventilation plant in the Freer Building was operated in the usual manner during the winter and up to the time the building was opened to the public, since which time the speed of the fans has been materially increased, to provide the additional air necessary for properly ventilating the galleries. The result obtained by the system has been more satisfactory than was anticipated. While the temperature of the galleries has been somewhat high on extremely hot days, the circulation of air was sufficient to produce the necessary cooling effect in spite of the fact that no help was gained from the air washers.

The ice machine in the Natural History Building produced 279.6 tons of ice. The plant is gradually growing less efficient from year to year. An item covering the purchase of a new ice machine was included in the estimates for appropriations submitted to the Bureau of the Budget.

COLLECTIONS.

The total number of specimens acquired by the Museum during the year was approximately 217,611, about 60 per cent as many as received during the preceding year. The value of the yearly increment can not, however, be appraised from numbers only. Many of the acquisitions this year are exceptionally valuable, either scientifically, as types and as representatives of new species and new localities, or because of great intrinsic worth. Additional material to the extent of 1,155 lots, mainly geological, was received during the year for special examination and report, a service of which the practical value was demonstrated during the World War.

The distribution of duplicates, mainly to schools and colleges for educational purposes, aggregated 9,131 specimens properly classified and labeled and 100 pounds of material suitable for blow-pipe analysis. These distributions were about equally divided between the regular sets of specimens previously prepared for shipment and those specially selected to meet particular needs. Nearly 35,000 duplicate specimens, mainly botanical and geological, were sent out in exchange, in return for which much desirable material was received. Over 12,000 specimens were lent to specialists for study on behalf of the Museum and otherwise.

Anthropology.—In anthropology the more important additions were a carved stone figure from the Makah Indians, showing a mastery of expression by the artist; casts of the La Quina and Obercassel skulls and skeleton; a noteworthy Chinese harvest bell of gilt bronze; a superior stone collar from Porto Rico; a series of archeological specimens from Haiti; an ethnological collection from Formosa; an ancient stone pipe from Kentucky with remarkable incised decorations; and casts of the busts of the heretic Pharaoh, Amenophis IV and his queen, and a statuette of the latter.

Biology.—While the number of biological specimens received during the past fiscal year falls short of that of some of the previous years, there is no cause for alarm, as the scientific value of the collections compares favorably with and probably exceeds that of the average.

No single collection stands out prominently, except perhaps the Evezard collection of recent mollusks, which was purchased and presented to the Museum by the late John B. Henderson. Another collection of great scientific interest is the series of Opalinid ciliate infusorians prepared by Professor Maynard M. Metcalf, of Oberlin, Ohio, which forms the basis of his monograph published during the year by the Museum as its Bulletin No. 120. The most significant feature of the year's accessions is the fact that some of the more important ones are from China, as a result of deliberate efforts at improving systematically the study material from the palearctic region, which is of such a fundamental importance for a full understanding of our North American fauna.

This tendency toward a more conscious development of the weak portions of our collections was made possible by the explorations now on the way in China undertaken by friends of the Museum, such as Mr. Charles M. Hoy's trip financed by Dr. W. L. Abbott, and Mr. A. de C. Sowerby's by Col. Robert S. Clark. Rev. D. C. Graham's explorations in the Province of Szechuen were also fruitful of scientifically valuable material, while an expedition recently sent into the field by the National Geographic Society under the leadership of Mr. Frederick R. Wulsin holds great promise for the future. Many important gaps in our South American collections were also filled by Dr. Hugh M. Smith as a result of his expedition to Uruguay. Dr. W. L. Abbott's visit to the Dominican Republic added materially to our botanical and herpetological series. Secretary Walcott's explorations in the Canadian Rockies, as well as Dr. Paul Bartsch's trip to the West Indies, and that of Dr. Leonhard Stejneger to the Commander Islands were also productive of desirable material. The botanical expedition to Colombia by Dr. F. W. Pennell and Mr. Ellsworth P. Killip, undertaken in cooperation with the Philadelphia Academy of Natural Sciences, the New York Botanical Garden, and the Gray Herbarium of Harvard University, brought home one of the largest and most important plant collections ever obtained in that country. Dr. William R. Maxon had not returned from Central America at the end of the fiscal year.

The Australian mammal exhibit has been further strengthened by the addition of several species, and a Malay tapir was incorporated in the oriental region exhibit. Several other large mammals were likewise mounted and placed on exhibition, among which the gorilla mounted by Brown and Aschemeier from a specimen collected by the latter a few years ago while attached to the Collins-Garner Expedition to French Congo, deserves special mention. Good progress was made in the arrangement and cataloguing of the study series, which are described as in excellent condition.

The research work of the staff has continued unabated and several important manuscripts were brought to a close or nearly finished during the year. A large number of smaller papers were published as a result of the year's work, but the great majority of the published results date farther back, partly due to the difficulties in obtaining speedy publication, partly because their preparation extends over a period of years. Some very important systematic works done by scientists not members of the staff, but based on Museum material, were published during the year as Bulletins No. 100, vol. 5, and Nos. 120 and 123.

Loans of specimens to scientific institutions and individual investigators have been made on the usual liberal scale. Duplicates distributed to high schools, colleges, institutions, etc., aggregated 3,545 specimens, of which 1,490 consisted of mollusks in 10 prepared sets and 608 fishes in 8 sets. Exchanges to the number of 28,693 were sent out, of which 2,491 were zoological and 26,202 botanical.

The total number of specimens of animals and plants now in the national collection is estimated to exceed 7,000,000, of which 1,150,000 are plants.

Geology.—Although accessions in the department of geology are smaller in number than in the year previous, a considerable increase in individual specimens and in their scientific value is to be noted.

The paleontological collection of the late Orestes St. John, consisting principally of fossil fishes, many of them types, adds material of incalculable value to the specialist who may take up the study of this group, and Dr. Frank Springer who made this donation, has earned the thanks of future workers in thus placing it where it will always be available. Another most notable accession is the residuary portion of the collection of the late R. D. Lacoe, of Pittston, Pa., presented by his heirs. This is estimated to contain not less than 10,000 specimens, mainly fossil plants, with some invertebrates and vertebrates, from many localities in this and foreign countries, and from various geological horizons. Supplementing the collection is Mr. Lacoe's paleontological library comprising, it is estimated, at least 2,000 volumes and an equal number of pamphlets. Mrs. Coonley Ward generously donated the residuary portion of the meteorite collection of her husband, the late Prof. H. A. Ward. This is of value not so much in adding new meteorites, as in furnishing material for study and exchange. Thirteen additional accessions of meteorites, mostly new to the collections, are recorded, received chiefly through exchanges.

Continued activities of Mr. Victor C. Heikes have resulted in the acquisition of the most interesting of the recent additions to the economic collections.

The division of mineralogy has benefited largely through exchanges. A most important acquisition is a portion of a large bowlder of jade received from Col. W. B. Thompson, and an unusually fine specimen of crystallized descloizite from southwest Africa, acquired through Ward's Natural Science Establishment. Other exchanges resulted in adding upward of 60 species new to the collection. Several cut gems of unusual quality and size were purchased through the Chamberlain endowment fund.

The continued acquisition of foreign paleontological material is to be noted. Chief among the contributors are Dr. E. O. Ulrich, who made collections in northern Europe; Mr. Stephen R. Capps, in Palestine; various oil companies and private collectors in Mexico, Central and South America; Mr. Edwin A. Walford, of Banbury, England; and various universities and institutions in Europe.

Research work has formed an important part of the department's activities during the year, and assistance has been furnished to numerous schools and students, chiefly through the distribution of materials needed in their studies. The records show that 81 educational institutions, chiefly high schools and small colleges, have been given such assistance.

Textiles, wood technology, organic chemistry, foods, and medicine.—The collections under the supervision of the curator of textiles, which, besides textiles, embrace wood technology, foods, organic chemistry, and medicine, were increased by many gifts and by transfer and loan of property from other Government bureaus, amounting to over 2,000 objects. The most important of these are as follows:

A large series of specimens of pyralin, bakelite, condensite, and cellulose acetate, showing the manufacture and use of these products of modern chemical industry as substitutes for such natural raw materials as ivory, bone, horn, tortoise shell, amber, etc., the supplies of which are growing scarcer every year; and a set of pneumatic bicycle tires made in 1891 and believed to belong to one of the earliest types used. There were added by gift beautiful specimens of silks, woolen fabrics, and mohair upholstery textiles contributed by American manufacturers to show the progress of textile industries in this country.

To the collections arranged to show the importance of wood and the industries based upon the use of that raw material, there were added wonderfully well preserved specimens of the ancient cypress wood brought to the surface during the excavation for the foundation and basement of the new Walker Hotel, Washington, and believed to be over 30,000 years old; an exhibit showing the manufacture of double-tipped matches; and another pointing out the ravages of the white pine blister rust and methods for its control.

The collections in the division of medicine were enlarged by a large collection of Italian hospital supplies of the type used in the World War and carried as field equipment by the Italian troops; specimens showing the use of chaulmoogra oil derivatives in the treatment of leprosy in the leper settlement of Molokai, Hawaii; several ancient surgical instruments and medical manuscripts; and a portrait in oil of Dr. Crawford W. Long.

Mineral and Mechanical Technology.—The divisions of mineral and mechanical technology had the experience of adding more objects to their collections within the year than in any single year since their inception and almost wholly as a result of their own efforts. Practically every section within the divisions shared in this increment, but chiefly the sections devoted to mechanical communication, general mechanical engineering, coal-products industries, land transportation, and aerial transportation. The objects acquired for the section of communication will now make it possible to visualize the developments of methods of communication from those of smoke and fire to those of wireless telegraphy, with all of the essential intermediate steps. To the mechanical engineering collection there was added a series of models made in the divisions' workshops illustrating mechanical principles and the fundamental elements and devices used in machines. The subject is by no means covered by this series, which represents simply the beginning of a new activity possessing valuable educational possibilities. To the coal products industries section there was added a model illustrating the manufacture of coal gas and carburetted water gas. With this addition the divisions have covered fairly completely the fuel situation both in the home and in industry. In other sections of the divisions the additions to the collections tend toward a rounding out of individual subjects. Thus there were added several models of aircraft; a locomotive model; a boat model, and an automobile. The electrical engineering collections were enhanced by a working model of the Ford automobile ignition system which admirably illustrates the principle of induction as applied to electric current generation, a principle which Joseph Henry independently observed and announced about the same time as the accredited discoverer, Faraday.

The divisions' cooperative educational work, particularly that with the State of Pennsylvania, became more firmly established through the preparation by Mr. S. S. Wyer, associate in mineral technology, of the book "The Smithsonian Institution's Study of Natural Resources Applied to Pennsylvania's Resources." Copies of the book were distributed free to school teachers throughout Pennsylvania designated by the board of education and used in certain fitting courses of the grade schools. One of the interesting reactions resulting from this work was the assistance rendered by Mr. Wyer to the city of Erie, Pa., in an intensive educational campaign organized by the local chamber of commerce in an endeavor to conserve the city's natural gas supply, which is rapidly declining, due largely to preventable wastage.

Graphic Arts.—The 1,146 specimens assigned to this division covered a wide range, materially exceeded in number those received the preceding year, and brought the total number of specimens in the division up to 22,936. Almost the beginning and the latest development of type composition were represented in the year's accessions by a leaf of the Gutenberg Bible, one of the first books to be printed from movable type, and examples of the monotype system of composing and casting justified lines of single type. Other important acquisitions included a newspaper exhibit; specimens of bookbinding; a unitype typesetting machine; wood-block prints and etchings by Helen Hyde; 50 proofs of etchings, aquatints, wood-block prints, lithographs, etc., the gift of 24 contemporary artists; Woodville Latham's motion-picture projector of 1895; notable additions of pictorial photographic prints and color collections in photography; and many additions supplementing and completing existing exhibits.

Seven loan exhibits, five in the graphic arts halls and two in the gallery devoted to the photographic section, brought the Museum collections in these lines prominently before the local and visiting public. Two collections of pictorial photographs were lent for exhibition elsewhere and, in furthering publicity outside of Washington, two traveling exhibits of about 100 specimens each were prepared illustrating the principal processes of the graphic arts. The first of these was shown in seven different cities and the second, prepared later in the year, was exhibited only in one city.

History.—During the past fiscal year the historical collections received, in addition to the normal increase along this line, two accessions of unusual size and importance and one of unparalleled intrinsic and scientific value. The first of these includes the large aggregation of antiquarian, costume, military, naval, and miscellaneous materials collected by Mrs. Julian James during a long period for deposit in the National Museum, which by the terms of her will have now become the permanent property of the Institution. This collection has already been described in previous reports, but its permanent acquirement by the Museum is worthy of special note. The second accession of unusual significance is a large collection of historical military materials deposited in the Museum by the Military Service Institution. The collection was assembled by this society beginning at the time of its organization in 1878, and consists for the most part of swords, guns, pistols, flags, and miscellaneous relics of the period of the Civil War, but includes also relics of the former wars in which the United States has participated. Among the most notable objects in the collection are a bronze cannon captured from the British troops commanded by Maj. Gen. John Burgoyne at Saratoga in 1777; a mortar made by D. King of Philadelphia; a sword owned by Commodore Stephen Decatur, United States Navy, and the mounted figure of the war horse of Gen. Philip H. Sheridan.

The accession of unparalleled importance is one including the entire collection of numismatic material formerly exhibited in the United States Mint in Philadelphia, which, owing to the closing of this mint to the public, was transferred to the Museum by the Treasury Department in June, 1923. This collection includes a large number of ancient coins, a fair representation of medieval European coins, a very complete aggregation of modern European coins and commemorative medals, a large collection of the temporary coins of the period of the World War, and an exceptionally fine and large collection of United States coins, medals, and paper currency. While the acquirement of this collection by the Museum is most gratifying in that it adds such an aggregation of intrinsically valuable matter to the Museum collection, the most essential fact in connection with the transaction is the basis which it offers for the future development of the collection and the encouragement of the science of numismatics in the United States.

EXPLORATIONS AND FIELD WORK.

It is hoped that the falling off in biological exploration noted in recent reports has reached its lowest ebb during the present year, and that from now on a turn of the tide may be expected. With this possibility in view plans and problems for future biological explorations and expeditions have been outlined, preparing the Museum to take the greatest possible advantage of the hoped-for improved conditions. The central idea proceeds from the fact that the early biological problems and research of the Museum naturally related to the fauna and flora of North America, especially that part opened up by the War with Mexico and the explorations for railroad lines to the Pacific coast. The necessity of working up this material was naturally paramount. With the purchase of Alaska a hitherto unexplored territory on this continent naturally attracted the attention of the National Museum, especially since the early activities in Alaska were almost exclusively investigated by the Federal Government with the result that nearly all the material collected there came to Washington. So intensive was this study of the native fauna, especially that of the vertebrates, that within a comparatively short time North America, from a taxonomic point of view, was better explored and better known than any other part of the world, Europe itself not excepted. At the time these intensive studies began North America was regarded as one of the primary zoogeographical divisions of the world, coequal with South America, the oriental region, Africa, and the Europe-North Asian region, also known as the palearctic region. Later on considerable collections from the Pacific coasts of northern Asia and from Europe found their way into the National Museum. It was then seen that the North American fauna, at least that part which occupied the more temperate portions of the continent northward, is most closely related to the palearctic fauna of temperate Asia and northward, and it was realized that the dominant constituency of the North American fauna actually had its origin in the Old World. Here then is a whole series of closely related problems seeking solution in Asia and Europe. The circumstance that the United States Biological Survey has gradually taken over to a great extent the restricted North American field for still more refined cultivation serves to stimulate the interest of certain of the larger divisions of the National Museum in the palearctic region. The Museum has already made a good start in that direction. It has excellent collections in many lines of the palearctic fauna. Its collection of European mammals is one of the most comprehensive extant. It has excellent series of birds, reptiles, and batrachians from Japan, Korea, and Kamchatka in eastern Asia, besides a respectable representation in other classes. It has also important material collected by the Lyman-Hollister expedition to the Altai region some years ago, and the Koren-Avery expedition to the mouth of the Kolyma.

It is, therefore, with special gratification that attention is called to the work now in preparation and partly in progress for the biological exploration of China in the interest of the National Museum. The field work by Arthur de C. Sowerby, the expense of which is most generously met by Robert S. Clark, which was started in the fall of 1921, has continued during the present fiscal year, and very material additions to our vertebrate collections have already resulted.

Of equal significance is the fact that Dr. W. L. Abbott, after the return of Mr. Charles M. Hoy from Australia, decided to send him to China to collect for the Museum. Mr. Hoy departed for his new field on December 15, 1922. Thus far no collections have been received, due to difficulties of transportation and the political situation which has placed obstacles in the way of reaching the final destination, but recent letters indicate that we may soon see tangible results of his efforts.

A third expedition in China, from which the National Museum is expected to derive great benefit, is that of the National Geographic Society, under the leadership of Mr. Frederick R. Wulsin who is already in the field.

In this connection should be mentioned the activities of Rev. D. C. Graham, who, located at Suifu in the Province of Szechuen, China, undertook an expedition to Mount Omei, from which the Museum received very important collections, especially insects, birds, and reptiles. He is planning to make an expedition to Tatsienlu, and possibly to Mupin, during the present summer, both localities of great zoological interest.

Dr. W. L. Abbott revisited the Dominican Republic in February and March, 1923, continuing his biological explorations of recent years. As his permit to collect birds was delayed until he was about to leave the country he only obtained the skin of one bird and saved its body in alcohol. His collections of reptiles and amphibians, however, were highly important, obtaining as he did a new species of frog, recently described by Miss Cochran as *Leptodactylus abbotti* from the specimen collected by him. It is nearly related to the one from Porto Rico and establishes the genus as one definitely belonging to the Antillean fauna. He also collected about 600 plants in the southern part of the Samana Peninsula, which will doubtless prove as interesting as the previous collections obtained in the same region by Doctor Abbott, which have yielded a large number of new species.

In connection with the heredity experiments conducted by Dr. Paul Bartsch, under the joint auspices of the Smithsonian and Carnegie Institutions, it was found desirable to add several species of Cerions in order to exhaust the apparent possibilities that this group presents. For that reason Doctor Bartsch visited Porto Rico in May, obtaining a large number of specimens of the desired Cerion, as well as a large series of additional species. About 15,000 specimens were added to the Museum collection as the result of the trip.

Dr. Hugh M. Smith, associate curator in zoology, spent several months in South America, primarily for the study of the fur-seal and other fisheries of Uruguay, during which time he made extensive collections for the Museum in all branches, especially fishes, reptiles, and marine invertebrates. He sailed from New York on September 23, 1922, returning in January, 1923. The opportunity to collect in Brazil when the steamer stopped was improved, but the main collections were made in Uruguay, especially at the Lobos Islands. The collections form a most welcome addition to the Museum series, which were very deficient in material from the region visited.

During the spring of 1923 Mr. C. R. Aschemeier, one of the taxidermists, was given permission to accompany Mr. A. H. Fisher on an expedition to the lower Amazon River, Brazil, the understanding being that Mr. Aschemeier should devote his time to making collections of the vertebrates for the National Museum, with particular reference to river dolphins and seacows. He left New York late in April and no collections have been received as yet.

Dr. William M. Mann, assistant custodian, section of Hymenoptera, undertook for the Department of Agriculture a trip to Mexico between January 19 and June 7, 1923, for the purpose of collecting and studying certain fruit flies. As far as possible general collections of insects were made and some reptiles and a few ethnological specimens secured. The material has not as yet been accessioned, but enough is known of it to prove its value, although owing to the extreme dryness of the season collecting was very poor. From Nogales he went down the west coast of Mexico as far as Tepic, making a 10-day side trip to Lower California in the district between Loreto and Comondu. Afterwards the States of Jalisco and Colima were visited and then a rather hurried trip was made to the Isthmus of Tehuantepec and in Chiapas as far as Tapachula. He returned by way of Loredo, Tex.

Secretary Charles D. Walcott's expedition to the Canadian Rockies was productive of valuable additions to the mammal collection, as already mentioned.

The botanical explorations during the year have added materially to the collections of the National Herbarium. Dr. W. L. Abbott's visit to the Dominican Republic has already been mentioned.

Mrs. Agnes Chase visited Europe from March until July, 1922, for the purpose of studying the grass collections in the herbaria at Vienna, Munich, Florence, Pisa, Geneva, Berlin, Leiden, Brussels, Paris, and London, and many type specimens of American grasses were examined. A large number of valuable specimens of grasses also was obtained for deposit in the National Herbarium, including fragments of many types and duplicates of early South American collections.

Dr. William R. Maxon, associate curator of the division of plants, left Washington in May, 1923, accompanying a party directed by Mr. O. F. Cook, of the United States Department of Agriculture, whose purpose is to investigate the rubber resources of Central America. At the time of preparation of this report the party was in Panama and it was expected that two months additional would be spent in Central America.

Dr. A. S. Hitchcock, custodian of the grass herbarium, left Washington in May, 1923, with the expectation of spending six months in Bolivia, Ecuador, and Peru, where he intends to devote particular attention to the study of grasses, but will also make collections of other groups of plants. The expedition is supported jointly by the

United States Department of Agriculture, New York Botanical Garden, and Gray Herbarium.

Dr. Charles E. Resser, under the auspices of the United States Geological Survey, accompanied Dr. E. O. Ulrich in an investigation of the Cambrian and Ordovician rocks of the Valley of Virginia during May, 1923, and secured important stratigraphic collections. Dr. Ulrich with his assistant, Mr. R. D. Mesler, continued field researches during the month of June, studying various sections of the Appalachian Valley in eastern Tennessee. During his trip to the International Geological Congress at Brussels in the summer of 1922, Doctor Ulrich visited important Paleozoic localities in various European countries and presented to the Museum all of the material collected.

While traveling in Europe in the summer of 1922, Miss Jessie G. Beach was detailed to study collections in various museums, and to consult with European scientists regarding matters of interest to the Museum. Miss Beach visited museums in France, Italy, Germany, Belgium, England, and Scotland, listing and sketching various type specimens of unusual interest, and studying methods of installation and labeling.

Mr. C. W. Gilmore, under the auspices of the Museum, made a trip to Roy, N. Mex., to investigate a reported discovery of *elephas* remains. The specimen proved to be valueless for museum purposes, and from that standpoint the trip was a failure. Mr. N. H. Boss made several short collecting trips to the Miocene deposits along Chesapeake Bay in search of fossil remains. As in previous years these trips were productive in the recovery of well preserved cetacean remains.

Late in the fiscal year Mr. Gilmore and Mr. Boss were detailed to excavate remains of dinosaurs in the Dinosaur National Monument, Utah, an undertaking which has long been awaiting a favorable opportunity for its consummation.

Assistant curators Foshag and Shannon on their own initiative made a brief trip to old copper mines in Carroll County, Md., a district which despite its proximity to Washington was practically unrepresented in the collections. A large suite of copper and iron ores and associations was secured. A day was likewise spent at the diabase quarry near Belmont Park, Va. So much material of interest was found that Mr. Shannon conducted the Washington Mineralogical Society over the ground on their annual field trip. The specimens collected have been turned over to the Museum. The limestone quarry at Leesburg, Va., was also visited and interesting mineralogical material secured.

Investigations by Miss Frances Densmore among the Yuma Indians of Arizona and some tribes in northern Mexico for the Bureau of American Ethnology brought to the Museum a collection of desirable ethnologica.

The third year of the exploration of ancient Pueblo Bonito, to which the National Geographic Society has devoted $75,000, under Neil M. Judd, the curator of American archeology, was productive of a number of specimens now deposited in the Museum. The journeys of Dr. Aleš Hrdlička to Brazil and Europe resulted in enriching the collections of the division of physical anthropology. In June Mr. Matthew W. Stirling, of the division of ethnology, carried on an exploration of several ancient villages at Mobridge, S. Dak., and collected a valuable series of material for the Museum.

For several other important expeditions in which the Museum was interested see under Researches and Explorations in the report of the secretary, page 6.

MEETINGS, CONGRESSES, AND RECEPTIONS.

The auditorium and adjacent council rooms afforded accommodations during the year for 145 meetings, covering a wide range of subjects. An innovation this year was a series of free Sunday afternoon lectures arranged by the Woman's Welfare Association. Heretofore the auditorium has not been used on that day.

The governmental agencies taking advantage of the meeting accommodations, besides, of course, the Smithsonian Institution and its branches, included the Budget Bureau and the Public Health Service of the Treasury Department; the War Department and its Army Medical School; the Women's Bureau of the Department of Labor; the Bureau of Entomology, the Forest Service, and the Federal Horticultural Board of the Department of Agriculture. The scientific and other groups included the National Academy of Sciences, the National Association of Postmasters of the United States, the National Committee on Prisons and Prison Labor, the National Association of Travelers Aid Societies, the National Conference of Social Work, the National Consumers' League, National Amateur Athletic Federation of America, the National Medical Association, the National Baird Memorial Committee, the Garden Club of America, the Girl Scouts, World's Dairy Congress Association, the American Association of Museums, Women's Welfare Association, the American Horticultural Society, the Anthropological Society of Washington, the Archaeological Society of Washington, the Art and Archaeological League of Washington, the Audubon Society of the District of Columbia, the Washington (D. C.) Chapter of the Wild Flower Preservation Society of America, the Entomological Society of Washington, the Federal Photographic Society, the Shakespeare Society of Washington, the School of Foreign Service of Georgetown University, the American University, Howard

University, the Garden Club of Washington, the Southern Society of Washington, and the Reserve Officers' Association of the District of Columbia.

At the Twentieth International Congress of Americanists at Rio de Janeiro, Brazil, August 20 to September 3, 1922, the Institution was represented by Dr. Walter Hough, head curator of anthropology in the Museum, and Dr. Aleš Hrdlička, curator of physical anthropology in the Museum, who served also as delegates on the part of the United States Government. Another member of the Museum staff, Dr. E. O. Ulrich, associate in paleontology, represented the Institution at the Thirteenth International Geological Congress meeting in Brussels, Belgium, August 10 to 19, 1922. The Museum was also represented at the eighteenth annual meeting of the American Association of Museums, held in Charleston, S. C., April 4 to 7, Mr. F. L. Lewton and the writer serving as delegates.

The Museum was the scene of several receptions. On the evening of December 19 the halls of the Museum assigned to the National Gallery of Art were opened for a reception following a lecture in the auditorium under the auspices of the Anthropological Society of Washington and the Archaeological Society of Washington. Opportunity was thus afforded for inspecting the collection of Chihuahua pottery belonging to the latter society. On January 9 the Archaeological Society and the Art and Archaeological League of Washington held a reception in the National Gallery of Art following an evening lecture by Count Byron Kuhn de Prorok, with a first view of a rare collection of antique jewelry recently lent to the society by one of its members, Mr. Kurt Walter Bachstitz, of The Hague. Another large reception was that to the National Academy of Sciences on the evening of April 23, in honor of Dr. W. W. Campbell. This followed a lecture in the auditorium by Doctor Campbell.

The exhibition halls on the first floor of the Natural History Building were the setting for a conversazione on the evening of February 3, as a part of the program in celebration of the centenary of the birth of Spencer Fullerton Baird, the second secretary of the Smithsonian Institution. The Marine Band furnished music during the evening. A meeting of Girl Scout leaders in the auditorium on the evening of April 25 was the occasion for opening all the exhibition halls in the building from 6.30 to 11 p. m. to enable the Girl Scouts, their leaders, parents, and friends to view the collections.

MISCELLANEOUS.

The number of visitors to the Natural History Building during the year aggregated 508,518; to the Arts and Industries Building, 259,542; to the Smithsonian Building, 95,168; and to the Aircraft Building, 42,904. The national collections in the Natural History

Building are accessible to the public every day in the year, Sundays as well as week days. Owing, however, to the limited appropriations for the maintenance of the Museum, the other buildings are not open on Sundays.

The Museum published during the year 10 volumes and 42 separate papers. The former comprised the Annual Report of the Museum for 1922; volumes 60 and 61 of the Proceedings; Bulletin 100, volume 5; Bulletins 120, 121, 122, 123, 124, and 126. The separates included 1 bulletin article; 4 papers in the series, Contributions from the United States National Herbarium; 5 papers from volume 61, 21 papers from volume 62, and 11 papers from volume 63 of the Proceedings. The distribution of volumes and separates to libraries and individuals on the regular mailing list aggregating 63,869 copies besides 8,660 copies supplied in response to special applications.

The Museum library, as one of the libraries administered under the direction of the Smithsonian Institution, enjoys the close cooperation of its associated libraries and in turn contributes substantially toward the general library activities. Much has been accomplished during the year toward better library service. The long-needed subject catalogue has been started, and at the close of the year 4,400 cards had been made and arranged. The arrangement of cards from the Concilium Bibliographicum distributed since the World War, is well under way, and progress is being made in the reclassification and shelving of the technological collections. Work has, however, suffered from a lack of funds for binding and renovating and from a vacancy in the staff during eight months of the year. The receipts for the year numbered 1,489 volumes and 2,796 pamphlets, bringing up the total of books and other material in the library to 160,560 titles. The number of loans made was 9,220, of which 5,191 were to the sectional libraries.

The death of John B. Henderson, a Regent of the Smithsonian Institution, on January 4, 1923, deprived the Museum of a valued friend, a constant contributor, and an indefatigable worker on its collections. The members of the scientific staff and other employees of the Museum and Institution gathered in the auditorium on January 8, 1923, to pay respect to their colleague and adopted resolutions expressing their deep sense of loss. Doctor Walcott presided and brief addresses were made by Doctor Walcott, Dr. W. H. Dall, Dr. Leonhard Stejneger, and Dr. Paul Bartsch.

Respectfully submitted.

W. DE C. RAVENEL,
Administrative Assistant to the Secretary in charge,
United States National Museum.

DR. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

APPENDIX 2.

REPORT ON THE NATIONAL GALLERY OF ART.

SIR: I have the honor to submit herewith the report on the activities of the National Gallery of Art for the fiscal year ending June 30, 1923.

The third year of the existence of the National Gallery as a separate administrative unit of the Smithsonian Institution has witnessed substantial advance in a number of directions, although additions to the art collections have fallen below those of several previous years. The activities of the gallery continued in most respects in directions corresponding with those of the two preceding years, the energies of the limited staff being devoted largely to the receipt, installation, and care of the collections; to completing the records and labeling; and to the preparation and publication of matter intended to aid in awakening an interest in the welfare of the gallery, and more especially in making known the vital importance of a gallery building.

An illustrated lecture prepared by the director, with the purpose of making the gallery and its needs better known to the public, has been widely presented. One copy with 75 lantern views, illustrating the gallery's collections, is in the hands of Mrs. J. W. Summers, of Walla Walla, Wash., who has associated with her Mrs. Henry Osterman, and has been utilized largely under the auspices of the Federation of Women's Clubs, principally in the State of Washington. A second copy (with seven additional slides), intrusted to Miss Leila Mechlin, secretary of the American Federation of Arts and utilized under the auspices of that important organization, is being very generally presented in the smaller cities and towns of the United States; and a third copy (with 82 slides), placed in the hands of Mrs. Rose V. S. Berry, chairman of the fine arts department of the Federation of Women's Clubs, is being featured at the meetings of that club throughout the country.

A recent act of Congress authorizes the raising of funds for the erection of a national gallery building in the following language: "The Regents of the Smithsonian Institution are authorized to prepare preliminary plans for a suitable fireproof building with granite fronts for the National Gallery of Art, including the National Portrait Gallery and the history collections of the United States National Museum, said building to be erected when funds from gifts or bequests are in the possession of the said Regents, in sections or completely on the north side of the Mall between the Natural History Building, United States National Museum, and Seventh Street, leaving a space between it and the latter of not less than one hundred feet and a space of not less than one hundred feet between it and Seventh Street, with its south front on a line with the south front of the said Natural History Building."

A two-page leaflet on the national gallery has been issued, which, like the recent leaflets on the Smithsonian Institution, is to have a wide distribution. It is intended to bring forcibly to the attention of the public the great need for a separate building to house the national art collections.

Detailed information regarding the growth of the gallery within the institution and as a feature of the United States National Museum, may be found in Bulletin 70 of the National Museum, and its subsequent activities are recorded in the annual reports of the institution and museum, and in the annual reports of the gallery for the years 1921 and 1922.

In two articles prepared by the director and published in art journals during the year, attention is called to the growth of the national gallery and to the great need for a gallery building. The first, under the title "The Story of the National Gallery of Art," appeared in Art and Archeology for June, 1923. The story of the National Gallery of Art from its beginning nearly a century ago is the record of the prolonged struggle of the art idea for national recognition, for a place in the serious consideration of the American people, and it is to be regretted that to-day, although art institutions are springing up on all hands, art has slight national recognition beyond the attention necessary to the care and display of the art treasures acquired by gift and bequest. For nearly a century the Smithsonian Institution has harbored the dream of a gallery of art, but art has been in the shadow of diversified scientific activities and in the deeper shadow of the all-absorbing material interests of a rapidly developing Nation. To-day the conditions are far from satisfactory. Growth of the collections through gratuitous contributions, even, is embarrassed by the almost complete exhaustion of space for the reception and display of all save accessions of very limited extent, and the problem before the institution, and certainly with equal insistence before the American people, is "Shall America have a National Gallery of Art, or a National Museum of Art, that will give us a respectable place among the cultured nations of the world?" The story of the vicissitudes of the incipient, struggling national gallery is here presented with the view of making known a great national shortcoming and stirring the pride of a people not accustomed to take a second or a third place in any field worthy of their ambition.

The second, with the title "Shall America Have a National Gallery of Art?" was published in The American Magazine of Art for July, 1923. This article is a plea for recognition of the claims of the incipient national gallery upon the American people and seeks to determine and enlist the agencies that may be brought to bear upon the erection of a gallery building.

The great importance of prompt action becomes apparent when it is recalled that the failure to provide housing for possible additions to the national collections means a great annual loss to the national gallery—to the Nation. The yearly addition of art works between 1905, and 1920, the latter the date of the complete exhaustion of gallery space in Museum buildings, averaged upward of half a million a year, while the entire increase per year for the three years since the latter date has fallen below $40,000. The loss to the gallery and to the Nation at this rate, would, in a score of years, amount to a sum equal to the erection of a building worthy of the name, and there can be little doubt that if a gallery building worthy of the name awaited the inflow of gifts and bequests, accessions would reach the substantial figure of half a million per year, as heretofore, or who shall say not twice that figure? Private owners, seeking a final resting place for their treasures, would doubtless, in many cases, prefer to be represented in a gallery belonging to the Nation, to all the people alike, than in any other. Our plea then, the plea of the Smithsonian Institution, is not only a worthy but an urgent one, and is now made to all the people of the Nation, and for all the people of the Nation.

THE GALLERY COMMISSION.

In 1921 the Regents of the Institution organized a commission which should devote its attention to the promotion of the gallery's interests in various directions, and the second annual meeting of this commission was held in the Regents' room of the Institution on December 12, 1922. The members present were: Daniel Chester French, chairman; W. K. Bixby; William H. Holmes, secretary ex officio; Gari Melchers; Charles Moore; James Parmelee; Edward W. Redfield; Charles D. Walcott, ex officio. At this meeting numerous important problems were considered and steps were taken to enlist national interest in the gallery and its development as an indispensable national institution.

The report of the secretary of the commission for the year was followed by reports of the standing, special, and subcommittees. Attention was given to the previously much-discussed project of an important exhibition of portraits, official and lay, to be held in the gallery, but satisfactory arrangements for holding the exhibit in 1923 could not be made. The question of appealing to Congress for a building for art and history was considered and discussion took place as to the feasibility of having the building project included in the program being formulated by Congress for prospective public buildings. Secretary Walcott brought to the attention of commission the question of the advisability of an appeal to American institutions and to the American people for aid in the building project. Following a discussion of the Ranger bequest fund and its administration, the commission appointed a committee of three—Messrs. E. W. Redfield, Gari Melchers, W. H. Holmes—to look after the gallery's interests in the final disposition of the purchases made from this fund by the National Academy of Design.

With this meeting, the initial one year terms of three members of the commission—Herbert Adams, Gari Melchers, Charles Moore—expired, and the Board of Regents at its annual meeting, January 12, 1922, elected these persons to succeed themselves for the full term of four years.

The art advisory committee appointed at the last meeting of the Board of Regents, examined the several paintings and other works offered to the gallery as permanent accessions. The following were accepted:

"Signing of the Treaty of Ghent," an oil painting by Sir A. Forestier, 1914. Presented by the Sulgrave Institution.

A cameo-cutter's outfit, consisting of wheel, dies, tools, etc., which formerly belonged to and was used by Louis Bonet, an engraver on fine stone. Presented by Paul W. Bartlett.

THE NATIONAL PORTRAIT COLLECTION.

As announced in the report for last year, a number of influential citizens desiring to preserve some pictorial record of the World War, organized a National Art Committee immediately after the close of the War, and arranged with a number of our leading artists to paint portraits of certain distinguished leaders of America and other allied nations in the war with Germany. The members of the committee as organized are: Hon. Henry White (chairman); Herbert L. Pratt (secretary and treasurer); Mrs. W. H. Crocker, Robert W. de Forest, Abram Garfield, Mrs. E. H. Harriman, Arthur W. Meeker, J. Pierpont Morgan, Charles P. Taft, Charles D. Walcott, and Henry C. Frick (since deceased).

Under this arrangement, 21 portraits were painted and assembled in the national gallery during the month of May, 1921. Later these were turned over to the American Federation of Arts for purposes of public exhibition. Before their final return to their place in the national portrait gallery, they were exhibited as follows:

1920–21:	
Providence, R. I	Rhode Island School of Design.
Philadelphia, Pa	Pennsylvania Academy.
Washington, D. C	National Gallery of Art.
Princeton, N. J	Princeton University.
New Haven, Conn	Yale University.
Boston, Mass	Boston Museum.
1921–22:	
Rochester, N. Y	Memorial Art Gallery.
Cleveland, Ohio	Cleveland Museum.
Williamstown, Mass	Williams College.
Amherst, Mass	Amherst College.
Buffalo, N. Y	The Buffalo Fine Arts Academy.
Cincinnati, Ohio	Cincinnati Museum.
Indianapolis, Ind	John Herron Art Institute.
Pittsburgh, Pa	Carnegie Institute.
Detroit, Mich	Detroit Museum.
Youngstown, Ohio	The Butler Art Institute.
Memphis, Tenn	Brooks Memorial Art Gallery.
St. Louis, Mo	City Art Museum.
1922–23:	
Grand Rapids, Mich	The Grand Rapids Public Library.
Ann Arbor, Mich	The Ann Arbor Art Association.
Topeka, Kans	Art Department, Washburn College.
Madison, Wis	The Madison Art Association.
San Francisco, Calif	San Francisco Museum.
Sacramento, Calif	Kingsley Art Club.
Baltimore, Md	Baltimore Museum of Art.

That the gift of these portraits might be distinctly national in character, it was decided that a group of two or more, financed by the art partrons of any city, should be inscribed as presented to the Nation by that city and that a representative of that city should become an honorary member of the National Art Committee. It was further decided that a tablet or other permanent record in the gallery should bear the names of the National Art Committee, including the chairmen of all local committees, and that there should be a record of the name of each subscriber to the purchase fund.

The cities which, to date, have made presentations are as follows:

Chicago—Portraits by John C. Johansen, N. A. (1876–):

- Field Marshal Sir Douglas Haig, commander in chief of the British Army on the Western Front, 1915–1919.
- Marshal Joseph Joffre, commander in chief of the French Armies, 1915–1917. O. M. 1919.
- General Amando Diaz, commander in chief of the Italian Armies, 1917– .

Cincinnati—Portraits by Douglas Volk, N. A. (1856–):

- His Majesty Albert I (Leopold-Clement-Marie-Meinrad), King of the Belgians, 1909– , and commander in chief of the Belgian Armies.
- Right Honorable David Lloyd George, Prime Minister and First Lord of the Treasury of Great Britain, 1916–1922.
- General John Joseph Pershing, commander in chief of the American Expeditionary Forces in Europe, 1917–1919.

New York—Portraits by Edmund C. Tarbell, N. A. (1862–):
- Woodrow Wilson, President of the United States, 1913–1921.
- General Georges Leman (Gerard Mathieu Joseph Gorges), commander of the fortified town of Liege (its defender in 1914).
- Marshal Ferdinand Foch, commander in chief of the French Armies, 1917– ; of the Allied Forces, 1918– .
- "Signing of the Peace Treaty, June 28, 1919," by John C. Johansen, N. A.

San Francisco—Portraits by Cecilia Beaux, N. A.:
- Cardinal Desiré Joseph Mercier, Archbishop of Malines, 1906– .
- Admiral Sir David Beatty, commander of the fleet and First Sea Lord of Great Britain, created First Earl Beatty, 1919.
- Georges Clemenceau (Georges Eugene Benjamin), President, Council of Ministers of the French Republic, Prime Minister and Minister of War of France, 1917–1920.

The following portraits are still available for presentation by other cities. In case offers are not made it is assumed that the committee remains responsible for their final disposition:

- Joan J. C. Bratiano (Bratianu), Prime Minister of Roumania and delegate to the Peace Conference, 1919, by Charles Hopkinson.
- Nikola Pashich (Pasic), Prime Minister of Serbia and delegate from Yugoslavia to the Peace Conference, 1919, by Charles Hopkinson.
- Prince Kimmochi Saionji, delegate from Japan to the Peace Conference at Paris, 1919, by Charles Hopkinson.
- Right Honorable Sir Robert Laird Borden, Prime Minister of Canada, 1911–1920, by Joseph de Camp.
- General Sir Arthur William Currie, commander of the Canadian Forces in France, 1917–1919, by Joseph de Camp.
- Admiral William Snowden Simms, commander of the American naval operations in European waters, 1917–1919, by Irving R. Wiles, N. A.
- Herbert Clark Hoover, United States Food Administrator, 1917–1919; chairman of the Supreme Economic Council, Paris, 1919.
- Vittorio Emanuele Orlando, president of the Council of Ministers of Italy, 1917–1919.

The collection of 21 portraits was returned to the gallery by the American Federation of Arts on June 12, 1923, and was hung in the central hall of the ground floor in direct connection with the great body of exhibits pertaining to the war with Germany. On its return to Washington the collection was enriched by the three-quarter length portrait of Her Majesty Elizabeth, Queen of the Belgians, by Jean McLean (Mrs. John C. Johansen), the completion of which had been delayed.

ART WORKS ADDED DURING THE YEAR.

GIFTS AND BEQUESTS.

Portrait of Miss Elizabeth Ellery Burge, by Thomas Mathewson, and portarit of Miss Jessie Jay Burge, by Abbott Handerson Thayer 1849–1921). "Permanent loan" (stipulated term), from the Misses Marie Louise and Jessie Jay Burge, of Warsaw, N. Y.

Two oil paintings: "Une Brave" and "An Alsatian Girl," by Miss Lucie Louise Fery. Bequest of the artist, through Mr. George H. Moffett, executor, Charleston, S. C.

"Wharf Scene" (oil), by Bertha E. Perrie. Gift of Miss Maude Burr Morris, Washington, D. C.

Mantel of carved white holly wood, with fireplace of pink Numidian marble, from the recently demolished residence of the late Benjamin H. Warder, 1515 K Street, Washington, D. C., Henry Hobson Richardson, architect (1838–1886). Gift of William White Wilson Parker, of Washington, D. C., and Mifflintown, Pa.

"Roosevelt Haunts, Early Autumn" (oil), by Emile Walters (1893–); awarded the William O. Goodman prize by the Art Institute of Chicago, 1921. Presented by an art collector, through Mr. A. Lawrence Kocher, the Pennsylvania State College.

A list of the portraits presented by various cities through the National Art Committee, Hon. Henry White, chairman, to the National Portrait Gallery is given on page 49.

Portraits deposited by the National Art Committee and available for presentation by other cities are listed on page 50.

A Chinese carved ivory screen and 141 pieces of antique and modern porcelain, made in Saxony, Austria, Denmark, Holland, Germany, France, and Great Britain between 1790 and 1860, were added to his collection by the Rev. Alfred Duane Pell, D. D., of New York.

DEPOSIT BY THE SMITHSONIAN INSTITUTION.

Bronze bust of Jeanne d'Arc, by Madame Berthe Girardet, gold medalist, Neuilly, France. Gift of Madame Girardet, the sculptor, through Mrs. John Jacob Hoff (Mrs. Grace Whitney Hoff), "to the American people in memory of what our soldier boys have done in France at a crucial time of need." Accepted by the Smithsonian Institution for deposit in the gallery.

The collection of 22 framed individual portraits and portrait groups in pastel, 70 portraits in all, of Federal and Confederate Veterans of the Civil War, painted by Walter Beck (1864–), 50 years after the battle of Appomattox, lent to the Smithsonian Institution on May 1, 1922, for a period of one year, through the agency of Mr. Walter Grant, became the property of the Nation by gift of the artist at the expiration of the year, "to be cared for by the National Gallery of Art." A complete list of these portraits was given in last year's report.

Portrait in oil of Edwin McMasters Stanton (1814–1859), Secretary of War under President Lincoln's administration, by Henry Ulke (1821–1910). Presented to the institution by his granddaughter, Miss Sophy Stanton.

LOANS.

The John Howard McFadden collection of 43 portraits and landscapes of the British school, left in trust to the city of Philadelphia; lent to the gallery by the trustees of the collection, Chief Justice Robert Von Moschzisker, of the Pennsylvania Supreme Court, Hon. George Wharton Pepper, United States Senator from Pennsylvania, and Justice Jasper Yates Brinton, court of appeals, mixed tribunals of Egypt. The will of Mr. McFadden directs that the trustees shall, pending the permanent housing of the collection by the city of Philadelphia, intrust the works to the Metropolitan Museum in New York or to a gallery of equal dignity. A catalogue of the McFadden collection, prepared by Harvey M. Watts, was published by the J. B. Lippincott Co. during the year. The artists represented, with titles of the paintings received, are as follows:

Richard Parks Bonington (1801–1828).
  A Coast Scene, Normandy.
John Constable, R. A. (1776–1837).
  The Lock.
  Hampstead Heath: Storm Coming Up.
  The Dell in Helmingham Park.
David Cox (1783–1859).
  Going to the Hayfield, 1849.
John Crome ("Old Crome") (1769–1821).
  Blacksmith Shop, near Hingham, Norfolk.
  Woody Landscape, at Colney.
Thomas Gainsborough, R. A. (1727–1788).
  Henrietta, Lady Rodney.
  A Classical Landscape.
George Henry Harlow (1787–1819).
  The Misses Leader.
  The Leader Children.
  Mrs. Weddell and Children.
William Hogarth (1697–1764).
  The Assembly at Wanstead House.
  The Fountaine Family.
John Hoppner, R. A. (1758–1810).
  Mrs. Hoppner.
Sir Thomas Lawrence, P. R. A. (1769–1830).
  Miss West (Afterwards Mrs. William Woodgate).
John Linnell, Sen. (1792–1882).
  The Refuge (or, The Storm), 1853.
George Morland (1763–1804).
  Old Coaching Days.
  The Fruits of Early Industry.
  The Happy Cottagers.

Sir Henry Raeburn, R. A. (1756–1823).
    Lady Belhaven.
    Master Thomas Bissland.
    Master John Campbell of Saddell.
    Colonel Charles Christie.
    Lady Elibank.
    Mr. Lawrie, of Woodlea, Castle Douglas.
    Alexander Shaw.
    Portrait of a Gentleman.
Sir Joshua Reynolds, P. R. A. (1723–1792).
    Master Bunbury.
    The Right Hon. Edmund P. Burke, M. P.
George Romney (1734–1802).
    Mrs. Crouch.
    Mrs. De Crespigny.
    Mrs. Finch.
    Lady Grantham.
    Lady Hamilton (Study Head).
    Mrs. Tickell.
    Rev. John Wesley.
    Little Bo-Peep.
James Stark (1794–1859).
    Landscape with Cattle.
George Stubbs, R. A. (1724–1806).
    Labourers; The Brick Cart, 1767.
J. M. W. Turner, R. A. (1775–1851).
    Burning of the Houses of Parliament.
Sir John Watson-Gordon, R. A. (1790–1864).
    Sir Walter Scott, Bart.
Richard Wilson, R. A. (1714–1782).
    View on the Thames.

Collection of 14 British and Dutch masters, lent by Henry Cleveland Perkins, Esq., of Washington and New York, as follows:

Sir William Beechey, R. A. (1753–1839).
    Portrait of a Gentleman.
John Hoppner, R. A. (1758–1810).
    Portrait of a Boy.
Sir Thomas Lawrence, P. R. A. (1769–1830).
    Henry, First Earl of Mulgrave.
Ladbrooke.
    A Cottage Scene.
Michael Janson Mierevelt (1567–1641).
    Portrait of a Dutch Lady.
John Opie, R. A. (1761–1807).
    Portrait of a Girl.
Sir Joshua Reynolds, P. R. A. (1723–1792).
    Frances, Countess of Clermont. (From collection of the Earl of Carlisle).
Salomon Ruysdael (1600–1670).
    The Windmill.

Richard Wilson, R. A. (1714–1782).
  Study of Ruins.
  Study of Ruins.
  Landscape.
Artist unknown.
  Landscape with Cottage.
Attributed to Van Dyck.
  Madonna and Child. (From the Duchess of Montrose Collection, Eng.).
Jan Victoors (1620–1672).
  Portrait of a Dutch Girl. (Collection of the Princess Mathilde.)

Three oil paintings by E. Hodgson Smart (1873–): "The Portrait of my Mother," 1915; "The Madonna of the Blue Veil," 1918; and portrait of James A. Stearman, 1917. Lent by the artist; withdrawn before close of the fiscal year.

"The Sphinx" (oil painting), by Colonel George Raum, C. S. A., as it appeared when excavated by him in 1896. Lent by the artist, Berkeley, Calif.

Three oil paintings: "The Fortune Teller," by Antonio Allegri da Correggio (1494–1534); "The Queen," by Jacobo Robusti (Il Tintoretto) (1512–8 to 1594); "Death of Lucretia," by Guido Reni (called Guido) (1575–1642). Acquired by the late Hon. Hannis Taylor in 1887, during his sojourn in Spain as United States minister, and lent by Mrs. Hannis Taylor, Washington, D. C.

"Spectres of the North (Icebergs)," and "Shoshone Falls of Snake River, Idaho," by Thomas Moran (1837–). Lent by the artist, Santa Barbara, Calif.

Self portrait by the artist, James DeVeaux, of Charleston, S. C. (1812–1844), painted in Paris, 1836. Lent by Mr. Porter F. Cope, Philadelphia, Pa.

Main entrance to the Benjamin H. Warder residence, designed by H. H. Richardson, from the Benjamin H. Warder residence, 1515 K Street NW., removed to make room for a modern office building. The stone is of Numidian marble and the wood white holly. Carving of the holly is by skilled workmen, assisted by students from Richardson's Boston office. Erected in 1885, and among the last houses designed by Richardson. Other houses by this master architect are the John Hay, the Henry Adams, and the N. L. Anderson residences in Washington. Richardson was born in New Orleans, the son of a southern planter; educated at Harvard and the Ecole des Beaux Arts, Paris; died 1886, aged 47 years. Lent by the Architects' Advisory Council, Horace W. Peasley, chairman.

Portrait of Richard Brinsley Sheridan, by Sir Joshua Reynolds, P. R. A. (1723–1792); lent by Ralph Cross Johnson, Esq.

Five paintings: Portrait of Admiral Holding Stevens, 2d, by Robert Hinckley; portrait of Mrs. Thomas Holding Stevens, his wife, artist unknown; portrait of Hon. Eben Sage, of Middletown, Conn., by Chester Harding; "Madonna," by Honario Mariari, favorite pupil of Carlo Dulci; "Madonna," by Carlo Mahratta. Lent by Mrs. Pierre C. Stevens, through Mrs. Frederick C. Hicks, Port Washington, Long Island, N. Y.

Portrait of Warren G. Harding, President of the United States, 1921–1923; by E. Hodgson Smart (1873–). Lent by the artist.

DISTRIBUTIONS.

Loans have been withdrawn by their owners, as follows: "Christ in the Temple," by J. B. Tiepolo; "The Doctor's Visit," by Jan Steen; and "A Young Dutch Girl," by N. Drost; withdrawn by Ralph Johnson, Esq.

Portrait of George Washington, by Rembrandt Peale, and portrait of John V. L. Pruyn, by Charles L. Elliott; withdrawn by Hon. Charles S. Hamlin. (The Washington was returned before close of the year.)

Portrait of Henry Clay Ide, by Ossip Perelma; turned over to Mrs. W. Bourke Cockran by direction of Mr. Perelma.

Portrait of Dr. George F. Becker and of Mrs. Florence Becker, by Fedor Encke; portrait of Mrs. Sarah Carey Becker, by Waring; painting by a Japanese artist; "A Woodland Study" and "The Placid Potomac," by W. H. Holmes; "The Deer Pass" (steel engraving), by Landseer, and a bas-relief; withdrawn by Mrs. Florence Becker Forrester.

"Landscape," by N. Diaz; withdrawn by Dr. C. C. Galloway.

"The Madonna of the Blue Veil," "Portrait of My Mother," and portrait of James A. Stearman, by E. Hodgson Smart; withdrawn by Mr. Smart.

Don Giovanni Rilgas, attributed to Cimabue; withdrawn by Capt. Edgar Thompson, United States Navy.

LOANS BY THE GALLERY.

The painting recently received through the Ranger fund, entitled "Tohickon," by Daniel Garber, N. A., was lent to the Art Institute of Chicago, to be shown at their annual exhibition, November 2 to December 1, 1922. It has been returned to the gallery.

The portrait of Miss Ellen Day Hale, by Mrs. Margaret Lesley Bush-Brown, presented to the gallery by Mr. Arthur Hale, was lent to Mrs. Bush-Brown to be exhibited at the art alliance of Philadelphia from January 3 to 16, 1923. It has been returned to the gallery.

The portrait of Sir James J. Shannon, R. A., painted in London in Sir James' studio by Orland Rouland (1871–), was lent to Mr. Rouland to be included in an exhibit of his paintings in New

York City, April 15–25, 1923. The painting has been returned to the gallery.

The portrait of Gen. George Washington, by Rembrandt Peale, belonging to Hon. and Mrs. Charles S. Hamlin, and the portrait of George Washington, by Charles Willson Peale, the property of Mr. John S. Beck and recorded as loans to the gallery, were lent, by permission of their respective owners, to the Pennsylvania Academy of Fine Arts, Philadelphia, Pa., to be shown at the Academy's exhibition of portraits by Charles Willson Peale, Rembrandt Peale, and James Peale, April 11 to May 9, 1923. These paintings have been returned to their places in the loan collection.

SPECIAL EXHIBITIONS.

An exhibition of American Handicrafts assembled and circulated by the American Federation of Arts was held in the gallery from November 1 to 25, 1922. It included jewelry, enamels, carved ivory, silver, pewter, iron, pottery, decorated china, batik and block-printed textiles, weavings, needlework, bookbinding, illuminations, book plates, designs for advertising, stained glass, wood carving, and lacquer, and consisted of 212 items, as shown by the catalogue prepared by Miss Elizabeth Neat and printed privately. The Regents and secretary of the Smithsonian Institution extended invitations to an opening private view of the exhibit on the afternoon of Wednesday, November 1, and many persons attended.

A collection of antique Etruscan, Greco-Roman, and Byzantine jewelry, and ancient glassware, pottery, and a bronze statuette of Nyx (Night), dating from the seventh century B. C. to the eleventh century A. D., was exhibited in the gallery under the auspices of the Archaeological Society of Washington, Dr. Mitchell Carroll, secretary, from January 10 to April 23, 1923. This collection is the property of Mr. Kurt W. Bachstitz, of The Hague, Holland, by whom it was lent to the Archaeological Society. A reception by the society was held on the evening of January 9, when the members and friends assembled to hear the lecture by Count Byron Kuhn de Prorok on his recent excavations at Carthage viewed the collection.

The Chicago Tribune exhibit of 90 original architectural drawings, selected from over 200 designs submitted in the Chicago Tribune's $100,000 architectural competition for their new $7,000,000 Administration Building was held in the Gallery, April 19 to 21. This competition engaged the talents of the best men in the architectural profession throughout the world, 22 nations being represented, and not only the prize design, by John M. Howells and Raymond M. Hood, associates, of New York (who became the architects of the building), but also those receiving other prizes and honorable mentions, were shown. The exhibit was placed on view by the Chicago Tribune in cities throughout the country at the chapters of the American Institute of Architects, fine art societies and art institutions, architectural schools, and universities, and was procured for the national gallery through the efforts of the Hon. Frederic A. Delano, Regent of the Smithsonian Institution.

THE HENRY WARD RANGER FUND.

The paintings purchased during the year by the council of the National Academy of Design from the fund provided by the Henry Ward Ranger bequest, with the names of the institutions to which they have been assigned, are as follows:

Title.	Artist.	Date purchased.	Assigned.
20. The High Seas	Gordon Grant	Dec. 4, 1922	Art Association of Richmond, Ind.
21. A Morning in Summer.	Leonard Ochtman, N. A.	do	Albany Institute and Historical and Art Society, Albany, N. Y.
22. The Quiet Valley	Guy Wiggins, A. N. A.	do	Rhode Island School of Design, Providence, R. I.
23. The Maumee River	Carlton T. Chapman, N. A.	do	The Toledo Museum of Art, Toledo, Ohio.
24. Winds of Destiny	Elliot Clark, A. N. A.	do	The Dayton Museum of Arts, Dayton, Ohio.
25. Sleep	Leon Kroll, A. N. A.	do	The City Art Museum of St. Louis, Mo.
26. By the Upper Lock	John F. Follinsbee, A. N. A.	Apr. 17, 1923	Grand Rapids Art Association, Grand Rapids, Mich.
27. The Gift	Ernest L. Blumenschein, A. N. A.	do	Fort Worth Museum of Art, Fort Worth, Tex.
28. Brooding Silence	John F. Carlson, A. N. A.	do	Baltimore Museum of Art, Baltimore, Md.
29. Smugglers' Notch, Stowe, Vt.	Chauncey F. Ryder, N. A.	do	Memorial Art Gallery University of Rochester, N. Y.
30. Falling Snow, New York.	Everett L. Warner, A. N. A.		Carolina Art Association, Charleston, S. C.

"The Fall Round Up," by Carl Rungius, N. A. (No. 11 in the 1922 report), recorded as assigned to the Corcoran Gallery of Art, has been transferred to the Bruce Art Museum, Greenwich, Conn.; and "Repose of Evening," by Ben Foster (No. 12 in the 1922 report), recorded as assigned to the San Francisco Museum of Art, has been transferred to the University of Michigan, Ann Arbor, Mich.

It may be mentioned in this place that, as provided by the terms of the bequest, all works purchased by the Ranger fund are later subject to transfer to the National Gallery, as directed in the following extract from the last will and testament of Henry Ward Ranger:

> All pictures so purchased are to be given by the council to art institutions in America, or to any library or other institutions in America maintaining a

gallery open to the public, all such gifts to be upon the express condition that the National Gallery at Washington, administered by the Smithsonian Institute shall have the option and right, without cost, to take, reclaim, and own any picture for their collection, provided they exercise such option and right at any time during the five year period beginning ten years after the artist's death and ending fifteen years after his death, and, if such option and right is not exercised during such period, the picture shall remain and be the property of the institution to which it was first given.

NATIONAL GALLERY LIBRARY.

Accessions to the gallery library Nos. 1–325 have been recorded from various sources as gifts, purchases, and exchanges, and include bound and unbound volumes and pamphlets.

PUBLICATIONS.

Holmes, W. H. Catalogue of collections, I, National Gallery of Art. Government Printing Office, 1922. 8vo, pp. i–vi; 1–98, 25 plates and 1 ground plan.

This is the first number of the catalogue series of the gallery which is to be issued from time to time as conditions warrant. It follows in general the form of the catalogue of the art collections of the National Museum prepared by former Assistant Secretary Rathbun (Bull. 70, U. S. N. M., 1916), which was published, however, before the gallery became a separate department of the Institution. It contains an introduction by the director, giving a brief account of the development of the art interests of the Institution and an outline of the organization of the gallery. This is followed by a list of the art works acquired previous to November, 1921, with brief biographies of the artists. It is illustrated with a ground plan and full page halftone plates of 25 of the most noteworthy of paintings and sculptures in the gallery.

—— Report on the National Gallery of Art for the year ending June 30, 1922. Appendix 2, Report of the Secretary of the Smithsonian Institution: Washington, Government Printing Office, 1922, pp. 42–54. Separate.

A two-page leaflet on the National Gallery has also been issued which, like the recent leaflets on the Smithsonian Institution previously issued, is to have a wide distribution. It is intended to bring forcibly to the attention of the public the great need of a separate building to house the national art collections.

Respectfully submitted.

W. H. Holmes,
Director, National Gallery of Art.

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 3.

REPORT ON THE FREER GALLERY OF ART.

Sir: I have the honor to submit the third annual report on the Freer Gallery of Art for the year ending June 30, 1923.

THE COLLECTION.

Work completed during the year includes the examination, classification, and preliminary cataloguing of Chinese and Japanese stone sculptures and jades begun in 1922. New work undertaken includes the preliminary cataloguing and final storage of Chinese and Japanese bronzes, lacquers and wood sculptures, Near Eastern and Egyptian pottery, and miscellaneous objects of bone, ivory, metal, glass, etc., from various sources. Much additional work has been done on the preservation of oil paintings, and one Chinese *kakemono* has been remounted in panel form. The autumn, winter and early spring were largely devoted to the installation of exhibits and to other preparations for the opening of the gallery to the public on May 2, involving the construction of cases according to designs previously made, the designing of pedestals, special stands, mounts, and easels and the execution of these under direct supervision of the curator and the superintendent, the choice, exhibition and labeling of objects, the transfer of books to shelves provided for them in the east study room, and the preparation of a brief pamphlet setting forth the history of the Freer collection, together with necessary information regarding the purpose and use of the building and collection. This pamphlet was given to visitors during the opening week and has since been sold for 5 cents a copy, having reached a second printing of 3,000 copies. In June, the making of identification photographs for the catalogue cards was begun.

BUILDING AND EQUIPMENT.

Work accomplished during the year includes the completion of several undertakings mentioned in the second annual report, such as finishing gallery walls and floors, picture frames and screen boxes, as well as many new tasks completed or begun and the inevitable repairs due to normal settling of the building and to ordinary wear and tear. For the exhibition galleries, the workshop has turned out 52 cases, and has 12 others " in work "; also 9 easels, 22 pedestals, 15 special stands, 40 block plinths, 5 large frames for screens, stone sculptures and tiles, 100 reeded frames for etchings, 3 molded composition bases for stone sculptures, and five sets of barricade stands have been made; while 6 walnut panels for the exhibition of scrolls and 19 benches were contracted for and built outside. On the ground floor, the east study room has been furnished with cork flooring, bookcases and a desk, the later made in the workshop. The offices, storage rooms, workrooms and lavatories have received additional equipment, including desk lights with necessary floor outlets, metal shelving, cupboards, a set of portable shelves for photographic work, glass door panels, extra locks, electric fans, etc. The fan room floor has been painted, and in the attic, blue size has been applied to the skylights and cotton curtains have been hung above the ceiling lights for the purpose of modifying both light and heat. In the cellar, two columns have been constructed under the partition wall between two rooms in the northwest corner of the building. To the equipment of the court, fresh soil and a few trees have been added, as well as three peafowl from the National Zoological Park and a supply of goldfish from the Fish Commission. Indebtedness to these two organizations is gratefully acknowledged.

OPENING AND ATTENDANCE.

The formal opening of the gallery took place during the week of May 2 to 8, inclusive. It was preceded by a "press view" on the morning of May 1, and a private view for the Establishment and Regents of the Smithsonian Institution on the afternoon of the same day. For the opening week 3,300 invitations were issued.

Total attendance for May: 19,274.

Largest attendance on Sundays, averaging 1,022.

Smallest attendance on Mondays, averaging 406.

Total attendance for June: 13,474.

Largest attendance during the week of the Shriners' convention: 1,158 and 1,202 on June 6 and 7, respectively, with an average attendance of 548 on other days. During the rest of the month, the largest attendance was on Sundays, with an average of 490, and the smallest on Mondays, with an average of 211.

Attendance in the study rooms for May and June: 186 persons, of whom 4 brought in objects for examination and 11 received permission to copy.

Total attendance for May and June: 32,648.

After June 11, a new regulation went into effect; namely, that the building should be open from 9 until 4.30 every day of the week except Monday, when it should be closed all day. This serves a double purpose in that it not only makes the exhibitions available to many people who are unable to come on week days, but also gives opportunities for necessary work which can not be so well undertaken when the building is open to visitors.

FIELD WORK.

IN EUROPE.

The months of July and August were spent by Miss Guest in Europe and were devoted to a study of various collections of Oriental art, following her attendance as delegate from this gallery to the meetings of the Société Asiatique de Paris, held in Paris from July 10 to 13, in celebration of the centenary of Champollion. Among the most important groups of objects studied were:

The collections of the Mission Pelliot, exhibited in the Musée Guimet and the Musée du Louvre.

The partly dismantled but important loan exhibition of Oriental pottery and stone sculpture at the Musée Cernuschi.

The collections of M. Raymond Koechlin and M. Calmann.

The Central Asian paintings collected by Sir Aurel Stein and deposited in the British Museum.

The objects from Turfan collected by Professor Von le Coq and now stored in the Völkerkunde Museum, and those from Samarra collected by Dr. Friedrich Sarre and now exhibited in the Kaiser Friedrich Museum, Berlin.

Miss Guest spent several days also in the pottery works of Staffordshire, England, where she was given every facility for examining materials and processes of manufacture.

Miss Guest's more detailed account of her field activities accompanies this report as Appendix A (not printed).

IN CHINA.

On February 12, Mr. Bishop left here for China, in charge of an archeological expedition sent out under the joint auspices of the Freer Gallery of Art and the Museum of Fine Arts, Boston. Working in accordance with instructions, but of necessity largely at his own discretion, Mr. Bishop's chief concern so far has been with matters of organization, which he has managed and now settled more successfully than might reasonably have been expected. He has also visited several sites of great archeological interest and made observations of importance to the future work of the expedition.

Mr. Bishop's detailed account of his field activities accompanies this report as Appendix B (not printed).

PERSONNEL.

Katharine Nash Rhoades was appointed associate, her appointment to take effect July 1.

Kwang-zung Tung was appointed field assistant, his appointment to take effect July 1.

Archibald Gibson Wenley was appointed field assistant on June 1.

Ruth L. Walker, stenographer, handed in her resignation, to take effect July 1.

Respectfully submitted.

J. E. Lodge, *Curator.*

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 4.

REPORT ON THE BUREAU OF AMERICAN ETHNOLOGY.

SIR: In response to your request I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1923, conducted in accordance with the act of Congress approved June 12, 1923. The act referred to contains the following item:

> American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including the necessary employees and the purchase of necessary books and periodicals, $44,000.

The chief has endeavored to expend the sum of money allotted in as conservative and economical a manner as possible, although confronted with many difficulties, among which is the increased cost of field work. Since the bureau was first organized expenses for its maintenance have greatly increased, and have doubled within the last 10 years. Several other tendencies of the times have limited the production of results. There has been a great awakening of interest in the treatment of certain Indian tribes by Government officials which has led to a corresponding increase in requests for our publications. Never before was there a greater demand for the published reports and bulletins of the bureau. The epoch-making discoveries in the Valley of the Tombs in Egypt have very greatly increased interest in the Science of Man and the desire for more accurate knowledge of prehistoric man in America is very keen. Newspapers, magazines, and other periodicals have done much to increase this interest and as may be said with regret many fake discoveries have been foisted on the public. Never before have accurate accounts of Indian life like those published by the Bureau of American Ethnology been more in demand than at the present time.

Several wealthy institutions have been led to give more money to American anthropology. Plans for archeological work in Yucatan and Central America costing many thousands of dollars a year are mentioned in some quarters, and many thousands are annually expended by another institution on pueblo archeology. For lack of adequate funds, the bureau is unable to carry on extensive work of this magnitude and it remains for the bureau to continue its work along the lines already successfully followed: by researches and publication of the results of less ambitious plans. It can not be expected that the quantity of field work with this handicap can be as great as it was when the field was almost untilled, but the chief is striving to keep the quality up to the past. For years to come as the culture of our aborigines fades into the past there will be plenty of work to do in gathering survivals and publishing reports to meet increased demand for authoritative literature on our aborigines. As the work of the bureau calls for increased popularization, in the judgment of the chief, the bureau should enlarge the number of popular articles which it publishes from time to time without decreasing strictly technical discoveries. The pages of our reports are full of the records of discoveries which are little known and at present interest only a few persons because of that fact. This should be obviated by putting into published form, suitable for the layman or for students in schools and colleges, the vast stores of knowledge which have been made by the staff of the bureau and its collaborators. The great success of the Handbook of American Indians clearly indicates the desire of the people for popular information on our aborigines and the bureau with an enlarged appropriation would be able to continue work of this nature.

In compliance with the act of Congress above-mentioned the Bureau of American Ethnology has continued its field and office researches on the American Indians including the ethnology of the Hawaiian Islands, and the inhabitants of Porto Rico and the Virgin Islands. Later in this report is a list of the annual publications. The high cost of printing has somewhat reduced the quantity but the quality has been maintained.

The rapid modification in aboriginal culture perceptible year by year in Indian manners, customs, and languages has led the chief of the bureau to encourage archeological and historical study of the Indians. Extensive researches have been carried on in Colorado, in the Harpeth Valley, Tenn., in the Ozarks, Mo., and on the Atlantic seaboard. In addition to archeological research considerable work has been done on documentary history, especially of the Creeks, Choctaws, and other Muskhogean tribes.

Although the bureau has hitherto published many memoirs on the Indians of the northwest coast, there still remains much ethnological work awaiting investigation in this territory. A very promising beginning was made in the study of the totem poles of this region by Dr. T. T. Waterman, a temporary assistant on the staff of the bureau who made a special trip to Alaska for that purpose. He not only collected considerable new material on totem poles but also on legends connected with them.

The intention of the chief is to continue the work thus inaugurated in Alaska, and to repair one of the old Indian villages for educational purposes. The former houses of the Alaska natives are now rapidly going to destruction; Kasaan, one of the largest, was deserted and has been made a national monument but is suffering for want of care. It is proposed to begin cleaning up this village, repair it, in order to minimize the dangers from fire and vandals, and put it in a condition to afford the greatest educational value to future students and tourists.

The first duty of the chief being administrative in nature much of his time is taken up by details of office work, in which, unless assisted by the members of the bureau, he would be greatly handicapped. The work of answering letters has greatly increased in the last five years, and the demands on the time of those engaged in it have been greatly multiplied. This has affected all members of the staff but it is very satisfactory to record that the letters in reply to inquiries are treated with the greatest respect and are looked upon as authoritative by the recipients.

When in Washington the chief has attended all meetings of the advisory committee on publications and one or two other committees to which he has been appointed. He has likewise accepted the welcome duty of keeping in touch with all the archeological expeditions from different institutions working on ruins in the area of the United States in order that he might intelligently advise action to the secretary on the requests for permits to carry on archeological excavations which each year are increasing in numbers.

The chief has made strenuous efforts to continue his studies of previous summers on the Mesa Verde National Park in cooperation with the National Park Service of the Department of the Interior. In July, August, and a part of September he was absent from Washington and completed the excavation of Pipe Shrine House, a building in the Mummy Lake group of mounds. An account of the initiation of this work appeared in the report for last year. This exceptional ruin was completely repaired and is now open for inspection of visitors.

The excavation and repair of a circular tower situated 300 feet from Far View House also engaged his attention from the middle of July until the close of the season. The mound of stones covering this ruin was known as far back as 1915, but its hidden building was not revealed until the close of June of the summer of 1922, when it was found to be a tower with three subterranean rooms, called kivas, which were evidently used for ceremonial purposes. Around these rooms was formerly a crowded cemetery, of ancient date, which led him to regard the whole area as a necropolis. The number of interments was too large for the number of dwellings. The three kivas belong to the highest type of these structures characteristic of the Mesa Verde. In one of them there was a well-made wall of secondary construction showing a secondary occupation and ruder masonry. This kiva showed signs of having been abandoned and later reoccupied, but how many years elapsed between the two occupations was not evident from data available.

The excavation of this Mesa Verde tower led to new ideas of the structure and use of these remains, hundreds of which are found scattered in the canyons and on the mesas of the northern tributaries of the upper San Juan River. This tower is a fair example of the type of these buildings. It was probably an outlook for observations of the sun and ceremonies connected with the sky god.

The first type of tower recognized in the Mesa Verde is a simple lookout situated naturally on the summit of a hill or high elevation, but unaccompanied by any other building; the second type has basal rooms which apparently are used for storage of food or possibly for habitation. Far View Tower is classified in a third type in which we have a tower rising from basal subterranean kivas, granaries, and dwellings. The purpose of this type of tower is the same as Pipe Shrine House.

During the greater part of August the tops of the walls of Far View House were covered with cement to protect them from the elements, and it is believed the protected walls will remain upright for several years without further repair. The permanent protection of these open ruins is always difficult and costly, but necessary. There still remain many unsolved problems on the Mesa Verde awaiting attention, but with small appropriations new ruins can not be opened and those already opened can not be repaired.

Some distance north of Far View Tower is the depression long ago christened Mummy Lake. Its true nature is unknown, though it may have been a reservoir; but no mummies have ever been found in its vicinity. In the thick cedars about it, situated on the right hand of the road, there are several small mounds indicating ruins, generally habitations, surrounding kivas. In one of these there are walls made of large stones set on edge, standing above ground. These stones project 4 feet above the surface and their size has led to the ruin being called Megalithic House. Excavation work on this ruin was begun but not completed before the appropriation was exhausted.

About every other night during the five months the chief worked on the Mesa Verde he gave camp-fire talks to visitors and spent considerable time daily in explaining the signification of the excavations while they were in progress.

In June, 1923, the chief made a trip to Deming, southern New Mexico, and visited different localities, Fort Bayard, Central, Silver City, and Pinos Altos, where pictured food bowls have been found. He purchased a beautiful collection of pottery from the Mimbres Valley, which supplements that already installed in the Museum.

In 1914 the chief first pointed out that the Mimbres Valley, in which this pottery is found, was inhabited in prehistoric times by a people who excelled all other pueblos in painting realistic figures on pottery. The scientific value of these pictures is very great from the fact that the prehistoric dwellers in the Mimbres Valley in this way left a reliable and permanent record of certain occupations (hunting, fishing, gambling), as well as wonderful representations of mythological animals of all varieties. If we could truthfully interpret these figures, our knowledge of the prehistoric mythology of a people of whose history, language, and relationship we know nothing from documentary sources would be greatly increased.

Not far from the close of the fiscal year, President Harding issued a proclamation declaring three groups of towers in southwestern Colorado and southeastern Utah to be a national monument. This announcement was particularly gratifying to the chief, not only because it preserved for future generations good examples of unique types of ancient buildings in our southwest but also because the idea of the reservation of Hovenweep National Monument originated in the Bureau of American Ethnology. The three groups composing this monument lie within a few miles of each other and are locally called Ruin Canyon group, Holly Canyon group, and the Tejon Mesa group.

During the fiscal year Dr. John R. Swanton, ethnologist, has completed the following manuscripts: "Social Organization and Social Usages of the Indians of the Creek Confederacy"; "Religious Beliefs and Medical Practices of the Creek Indians"; and "A Grammatical Sketch of the Alabama Language."

Doctor Swanton also completed a card catalogue, arranged under stems, of all of the linguistic material contained in the Arte de la Lengua Timuquana, by Francisco Pareja, and an English-Indian index for the same; and initiated a report on the stories of the southeastern Indians. By July 1 he had completed translations of stories in the Koasati language and made a beginning on those in Alabama. Material was added to his collection of references bearing on the economic basis of American Indian life, and some map work was done in connection with this phase of Indian life.

The 1st of July, 1923, found Dr. Truman Michelson, ethnologist, at work among the Fox Indians of Iowa. He collected sufficient material for a manuscript entitled "The traditional origin of the

Fox Society, known as 'They who go about singing' (singing-around rite)." This material will be published in the Fortieth Annual Report of the bureau. A good beginning was also made on the ceremonial "runners" and attendants. Tribal dissensions at Tama cut short Doctor Michelson's stay among the Fox Indians and he made a reconnaissance among the Potawatomi of Wisconsin, the Chippewa at Reserve in the same State, the Ottawa of Michigan, the Delaware-Munsee of Lower Canada, and the Montagnais of Lake St. John, returning to Washington near the 1st of October. He definitely determined that there are several different Delaware dialects spoken in Canada and the United States, and that some of these dialects are not clearly related; so that the word Delaware is merely a "catch all" term.

After returning to Washington Doctor Michelson devoted his time to elaborating the paper above mentioned on "The traditional origin of the Fox Society, known as 'The Singing-around rite'," completing it for publication.

About the middle of May Doctor Michelson left for the field to make a reconnaissance of the Algonquin tribes of eastern United States and Canada, including the Labrador Peninsula. His observations lead him to conclude that the aboriginal culture of the Penobscots at Old Town, Me., is disintegrating. None of the young people speak the language, and with the constant intermarrying with whites it will be but a short time when ethnology and folklore, which are both well remembered, will be a thing of the past. The Malecites living at the "village," about 12 miles from Frederickton, New Brunswick, cling tenaciously to the language, which is spoken universally, though practically everyone also has a good command of English. Their ethnology, on the other hand, is fast disappearing. During his short visit with the Penobscots and Malecites, Doctor Michelson determined a number of peculiar morphological traits of the language as compared with central Algonquian. He finds the phonetics of both languages extremely difficult, and on the whole it may be said that neither language is archaic in type. On June 13 Doctor Michelson arrived in Sydney, Cape Breton, Nova Scotia, en route to Labrador.

The beginning of the fiscal year found Mr. John P. Harrington, ethnologist, engaged in the preparation for publication of his recent field notes on the Picurís and Taos tribes of New Mexico and the Mission Indians of California. All the notes on the Taos Indians collected by the late Mrs. M. C. Stevenson were copied and arranged for publication.

Mr. Harrington also prepared for publication a paper entitled "Picurís Children's Stories with Texts and Songs." This manuscript embraces Picurís stories in native text such as are told to the Indian children on winter evenings in their little isolated village in northern New Mexico. The stories have high literary quality, and many of them hold the attention of child or adult throughout. The volume is thought to be practical for school use. The 12 songs accompanying the stories are beautifully rendered by Mr. Rosendo Vargas, and are transcribed into musical notation by Miss H. H. Roberts.

Mr. Harrington also prepared an article on "How the World Grew," which is an account of origins corresponding to the book of Genesis of the Bible obtained from the Mission Indians of California.

Mr. Cipriano Alvarado, a Quiché Indian of the highlands of Guatemala, was brought to this country for the purpose of linguistic study by Mr. William Gates, who kindly allowed Mr. Harrington to obtain from him a large amount of text material in this language. The Quiché is the direct descendant of the tongue of the ancient temple builders of the Central American jungles. In working with Mr. Alvarado with the kymograph, Mr. Harrington discovered that the Quiché and other Mayan dialects possess tones exactly like those of Chinese, and that these tones, as in the latter language, are often the sole means of distinguishing words that are otherwise phonetically identical. Work was also done with Mr. Alvarado and Mr. Gates on the pallophotophone, a machine recently invented by Professor Hoxie, of the General Electric Co. The pallophotophone proved of the greatest value for the study of tones in Indian and other languages, and its reproduction of the voice is true for all the sounds, even including s, h, and those of like timbre which are imperfectly rendered on the phonograph.

On May 3 Mr. Harrington proceeded to Santa Barbara, Calif., for the purpose of continuing his researches on the Indians of that State. He succeeded in finding good informants for Indian songs as well as stories and place names and obtained a large quantity of manuscript material. This material consists of myths, place names, historical notes, accounts of early life and customs, genealogies, and Indian songs.

The Bureau of American Ethnology is doing cooperative work with the Museum of the American Indian, Heye Foundation, of New York City, which obtained permission from the Hotel Ambassador Corporation to excavate the famous Burton Mound on the beach at Santa Barbara. This mound has always been known as the site of the principal rancheria of the Santa Barbara Indians, but former owners of the property refused permission to excavate it, and when the Potter Hotel was erected in 1901 hope of archeological investigation seemed forever lost. The site was unexpectedly made again available for study on account of the burning of the hotel a few years ago.

The excavations began early in May and the Indian cemetery was located on the slope of the mound toward the beach. The graves that were opened were crowded with human bodies, trinkets, and a great variety of utensils. Among the specimens are a fragment of a soapstone canoe, soapstone pipes, fishhooks of abalone and bone, sinker stones, arrowheads of great variety, spear heads, about 40 mortars, pestles, including some very long ones, beads of many kinds, pendants, daggers, bowls and kettles of soapstone, native paint, etc.

Mr. Harrington has prepared for publication during the fiscal year approximately 1,900 pages of manuscript.

Mr. J. N. B. Hewitt, ethnologist, completed during the fiscal year the second part of his Iroquoian Cosmology, the first part having appeared in the Twenty-first Annual Report of the bureau.

During the year Mr. Hewitt spent some time editing a manuscript entitled "Report on the Indian Tribes of the Upper Missouri," by Mr. Edwin Thompson Denig, to the Hon. Isaac Stevens, Governor of Washington Territory in 1854 (?), which has been submitted for publication.

Mr. Hewitt devoted much time and research in the preparation of data for official replies to correspondents of the bureau. These inquiries in their scope touch almost the entire range of human interest, very often seeking information quite outside of the specific field of research belonging to this bureau. About 100 such replies were prepared, although some of them required more than a day's work in preparation.

Mr. Hewitt also acted as the representative of the Smithsonian Institution on the United States Board of Geographic Names.

On May 18, 1923, Mr. Hewitt left Washington on field duty. His destination was the Grand River Grant to the Six Nations of Iroquois dwelling near Brantford, Ontario, Canada. At this place Mr. Hewitt made an intensive study and revision and fuller interpretation of his voluminous texts—texts which he had recorded so fortunately in previous visits to this place. These texts embody the traditions of the founding of the League or Confederation of the Five Tribes of the Iroquois in the closing decades of the sixteenth century. They contain also the principles and laws upon which it was established, as well as the complete rituals and chants of the Council of Condolence and Installation of the Federal Government, and full explanations of the intricate political relationships of the kindreds composing the tribal members of the league.

He was also fortunate in recovering enough data relating to the Federal and tribal chieftainesses to enable him to affirm the former existence of a set of official names for every one of these women magistrates. He also recorded much valuable information relating to the several institutions of the league.

On June 24, Mr. Hewitt made a short visit to the Onondaga Reservation, lying about 8 miles south of Syracuse, N. Y. He devoted his time on this reservation to a comparison of the limited knowledge possessed by the only two men who had any definite information of the various institutions and laws and installation rituals of the Iroquois Confederation, with the records which he possesses. The object was to ascertain, if still possible, how much of his Canadian material, if any, could be said to be recent, or whether the differences in the content were due merely to the breakdown of the traditions of the New York Onondaga. He convinced himself that the latter was the sole cause.

Mr. Francis La Flesche, ethnologist, was engaged most of the time during the fiscal year in assembling his notes for the third volume of his work on The Osage Tribe. In this volume are recorded two rituals of the Osage tribal rites. One is entitled Wa-xo′-be A-wa-thoⁿ, Singing of the Wa-xo′-be Songs, and the other, Ça Tha-çe Ga-xe, Weaving of the Rush.

SPECIAL RESEARCHES.

In her studies of Indian music during the fiscal year Miss Frances Densmore has included the songs of three tribes living in Arizona, near the Mexican border. These tribes are the Yuma, Mohave, and Papago. One of the manuscripts submitted this year deals with the cremation ceremony of the Yuma, witnessed by Miss Densmore in 1922. The ceremonial songs of this rite were recorded and information given by the oldest man, who has the hereditary right to sing these songs. It is the custom of the Yuma Indians to hold a memorial ceremony within a year after a death, at which an image of the deceased is burned. After this ceremony the name of the dead is never spoken. A full description of this ceremony was submitted, together with transcriptions of its songs.

The treatment of the sick by these tribes was also studied and healing songs of each tribe were submitted. Among these were the songs of a Yuma medicine man, who claims the power to cure persons suffering from wounds in the chest, accompanied by hemorrhage. This shaman said that he did this by the aid of four insects and birds, one of which has power over the fluids of the body. His songs are cheerful and soothing in character, and it is interesting to note that he forbade the people to weep during his treatment, requiring that they "appear cheerful and act in a natural manner."

Four manuscripts were submitted by Miss Densmore during the year, bearing the following titles: "Papago medicine and dancing songs," "Dream and war songs of the Papago Indians," "Cremation and memorial ceremonies of the Yuma Indians, with related songs," and "Lightning and medicine songs of the Yuma and Mohave Indians." This material comprised 93 pages of manuscript and 84 transcriptions of songs, together with the original phonographic records and tabulated and descriptive analyses of the songs. The two most interesting musical discoveries made in this work are the presence in these tribes of songs which may be termed "pure melody without tonality," and the independent and elaborated rhythm of the accompanying instrument, either a gourd rattle or a basket drum. In many instances the accompanying instrument is transcribed separately from the melody in order to show its peculiarities.

During the summer of 1922 Miss Densmore visited the Chippewa reservations at Lac Court Oreilles, Wis., and Leech Lake and Mille Lac, Minn., collecting additional specimens of plants used in treating the sick, and other data.

In the spring of 1923 Mr. W. E. Myer, special archeologist, spent several months investigating archeological remains in central Tennessee. He visited the ancient mound group of the Banks Link farm on Duck River, in Humphreys County, Tenn., where was found the celebrated cache of fine, long flint blades and other flint objects now the pride of the collection of the Missouri Historical Society. He made a map of this group and obtained additional information in regard to these masterpieces of the ancient flint-chipper's art.

Through the active aid of several citizens of Lincoln County he was enabled to visit and study an important and hitherto undescribed mound group on Elk River, at the junction of Lincoln, Moore, and Franklin Counties. He also obtained the definite location of over 75 unrecorded sites on which ancient man had lived in Lincoln County.

He explored a small burial mound and other vestiges of an ancient Indian village on the lands of Mr. L. W. Denny, Goodlettsville, Davidson County, Tenn., where he found 20 skeletons. There was evidence that two different tribes had occupied this site at separate times in the past, and the mound yielded a number of fine artifacts which throw light on the life of the people.

Mr. Myer spent two months exploring the remains of a great prehistoric fortified Indian town in Cheatham County, Tenn., known as the Great Mound Group on account of its great central mound. With the assistance of Mr. Wilbur Nelson, State geologist of Tennessee, an excellent topographical map was made, and through the repeated efforts of Lieut. Norman McEwen, of the 136th Air Squadron, Tennessee National Guard, some good airplane photographs of the mound on the Harpeth River, near Kingston Springs, were secured.

These remains cover approximately 500 acres in two bends of the river. In one bend he found a bold projecting hill which had been artifically shaped from bottom to top. Three wide terraces had been formed along the side of this hill. The original rounded summit had been leveled until a great plaza or public square, about 1,000 feet in length and 500 feet in breadth, had been formed. Upon the sides of this level plaza one very large mound and two smaller ones had been erected. This section of the ancient town was protected on the water side by the perpendicular cliffs of the Harpeth River. On the land side it was defended by an earthen embankment or breastworks surmounted by a wooden wall, from which at intervals semicircular wooden towers projected. These earthen breastworks, which had formerly supported this wooden wall, were still to be found in the undisturbed woodlands, where they yet extend about 1¼ miles, and there is evidence that they originally ran much farther. Wooden palisades, consisting of small tree trunks, had been driven into the ground side by side and wedged together and the soil thrown against them until they were by this means firmly embedded in these earthen embankments or breastworks. These palisades, bound closely together and strongly braced, formed a wooden wall which had been plastered on the outside in order to make scaling by an enemy difficult. Earthen bastions projecting beyond this line of wall at intervals of about 150 yards were still to be found. These had formerly supported the semicircular wooden towers. The enemy advancing to attack was therefore subjected to fire from the defenders through portholes along the main wall and also to a flanking fire from the warriors in the towers on these bastions. Faint traces of some of the timbers of these palisades and wooden towers were found in the soil of these embankments.

While the great central mound and terraced hill formed the most striking feature of this ancient town, there were in the inclosure four other eminences whose summits had likewise been leveled into plazas. All these plazas yielded traces of earth lodges and other evidences of former buildings. The earth lodges of the common people were situated on the edges of the terraces. The larger mounds had probably supported important public buildings and the lodges of leading personages. This grouping of important buildings around five separate plazas and in different parts of the town very probably indicates that the population was made up of what had once been four or five separate autonomous groups of kindred peoples. Here in their later home each group had gathered around their own public square in their own section of the town and thus preserved at least some of their old ceremonials and held together in some fashion their old organization.

It is impossible to determine even approximately the number of inhabitants, but the large number of the buildings and the long extent of the walls indicate a population of several thousand. All the buildings whose traces were uncovered appear to have been burned. Below the fallen-in wall of an important building the charred remains of the woven reed tapestry which had formerly hung upon the wall were secured for the National Museum.

It is not as yet possible to determine the age of these remains. Beyond all question this town had been destroyed long before the coming of the whites. No object of white man's manufacture was found on this site.

Mr. Gerard Fowke carried on archeological investigations in the Stratman Cave in Maries County, Mo. This cave, which is situated a little more than 2 miles south of Gascondy, the point at which the Rock Island Railroad crosses Gasconade River, has an opening on the side of a hill about 150 feet high. The approach to the cave on the river side is very steep, but from the top of the hill it is less difficult. Mr. Fowke opened a trench on the outside slope of the talus at a point 30 feet from the entrance of the cave and 16 feet below the floor level. He found most of the evidences of human occupation in superficial black earth, scattered throughout which from bottom to top were fragments of pottery, parts of vessels of varying capacity and thickness; chert knives or spearheads, none highly finished; hundreds of thousands of mussel shells more or less decayed; and other objects so abundantly found on the numerous camp sites and village sites along the Gasconade River. The artifacts were few in number and scattered throughout the mass, nowhere more than a few pieces in a cubic foot of earth. This denotes temporary occupation, at irregular intervals, over a long period of time. Yet the cave was not altogether merely a resort for temporary hunters or war parties. In addition to the pottery, which shows at least occasional sojourning in the cave, there were fragmentary bones, too fragile to preserve, of a child 2 or 3 years old, of another somewhat older, and a small adult, possibly a woman. These bones were found in different places but near the surface; there were no other indications of burials. The only specimens found worthy of note were a small hammer made of a chert twin-concretion and bearing evidence of long service; a pebble, used for sharpening small bone implements and for smoothing leather or rawhide strings; and a double concave discoidal with V-shaped margin.

While the results of the work at Stratman Cave contributed little to the antiquity of man in Missouri, Mr. Fowke's studies, which are accompanied by a small collection, are valuable in a comparative way. The Ozark region in Missouri is yielding many surprises to the archeologist and it is believed that there still remains much field work to be done here and in the neighborhood before the character and antiquity of the Indians of that region are definitely determined.

With a small appropriation Mr. John L. Baer carried on instructive field studies on the banner stones in the Susquehanna River region, and was able to make a good series reaching from the imperfect form into the more symmetrical objects. He also investigated the pictographs found near Delta, Pa.

EDITORIAL WORK AND PUBLICATIONS.

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, editor, assisted by Mrs. Frances S. Nichols, editorial assistant. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED.

Thirty-fourth Annual Report. Accompanying paper: A Prehistoric Island Culture Area of America (Fewkes). 281 pp., 120 pls., 69 figs.

Thirty-seventh Annual Report. Accompanying paper: The Winnebago Tribe (Radin). 560 pp., 58 pls., 38 figs.

Bulletin 76. Archeological Investigations (Fowke). 204 pp., 45 pls., 37 figs.

Bulletin 77. Villages of the Algonquian, Siouan, and Caddoan Tribes west of the Mississippi (Bushnell). 211 pp., 55 pls., 12 figs.

PUBLICATIONS IN PRESS OR IN PREPARATION.

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).

Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox Indian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society known as "Those Who Worship the Little Spotted Buffalo"; The Traditional Origin of the Fox Society known as "The Singing-Around Rite" (Michelson).

Forty-first Annual Report. Accompanying paper: Social Organization and Social Usages of the Indians of the Creek Confederacy (Swanton).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 79. Blood Revenge, War, and Victory Feasts among the Jibaro Indians of Eastern Ecuador (Karsten).

Bulletin 80. Mandan and Hidatsa Music (Densmore).

Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon).

Bulletin 82. Fewkes and Gordon Groups of Mounds in Middle Tennessee (Myer).

DISTRIBUTION OF PUBLICATIONS.

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

Annual reports and separates	5,363
Bulletins and separates	11,787
Contributions to North American Ethnology	10
Introductions	3
Miscellaneous publications	531
	17,694

As compared with the fiscal year ending June 30, 1922, there was an increase of 3,479 publications distributed.

ILLUSTRATIONS.

Mr. DeLancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

Drawings for publications	32
Photographs retouched for engraving	78
Illustration copy made ready for engraving	319
Illustrative proof edited	302
Editions of colored plates examined at Government Printing Office	160,000
Negatives prepared	232
Films developed from field exposures	240
Prints for distribution and office use	1,117

In November of last year Mr. Gill began to reclassify the large collection of ethnologic and archeologic negatives with a view of preparing a comprehensive catalogue of the linguistic families and tribes with such historic data as is available. He has made good progress in this work. About 5,000 negatives have already been catalogued.

LIBRARY.

The reference library continued under the immediate care of Miss Ella Leary, librarian, assisted by Mr. Roderick McPherson and later by Mr. Thomas Blackwell.

During the year 500 books were accessioned. Of these 70 were acquired by purchase, 130 by gift and exchange, and 300 by binding of periodicals. The current periodicals annually received number about 925, of which 35 are by subscription, the remainder being obtained through exchange. The bureau has also received 200 pamphlets. The aggregate number of volumes in the library at the close of the year was 25,061; of pamphlets about 15,100. Satisfactory progress was made toward the completion of the new subject catalogue from the old imperfact author's catalogue.

The most pressing need which confronts the library is shelving for the ever increasing accumulations of books. Extensive shiftings and readjustments have been necessary during the year in order to make space available where it is most needed, but the library is totally lacking in facilities to allow for its expansion.

COLLECTIONS.

The following collections, acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

69367. Archeological objects from Alaska collected by Dr. T. T. Waterman in the spring of 1922. (5 specimens.)

69530. Stone collar from Mayaguez, Porto Rico.

69660. Two incense burners found in a cave in southern Yucatan and presented to the bureau by Maj. E. H. Ropes, United States Army.

69881. Archeological specimens collected along the Susquehanna River (Maryland and Pennsylvania) in October, 1922, by John L. Baer. (174 specimens.)

69885. Two stone pestles from the Isle of Pines.

MISCELLANEOUS.

Clerical.—The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Mr. Anthony W. Wilding served as messenger and typist to the chief.

Mr. Roderick McPherson, messenger in the library, resigned March 31, 1923, and Mr. Thomas Blackwell, minor clerk, was appointed May 1 to fill the vacancy.

Respectfully submitted.

J. WALTER FEWKES,
Chief, Bureau of American Ethnology.

DR. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

APPENDIX 5.

REPORT ON THE INTERNATIONAL EXCHANGES.

Sir: I have the honor to submit the following report on the operations of the International Exchange Service during the fiscal year ending June 30, 1923:

The work of the service having returned to a normal basis, an estimate of $45,000 was submitted for carrying on the exchanges during the year, which is $5,000 less than that appropriated for the fiscal year 1922. This appropriation was made by Congress and in addition $200 was allowed for printing and binding. The repayments from departmental and other establishments amounted to $5,263.66, making the total resources available during the year. $50,463.66.

The total number of packages handled during the past 12 months was 377,826, a decrease from the number for the preceding year of 5,331. The total weight of these packages was 492,816 pounds, a decrease of 99,784. This large decrease in the weight was due to the fact that many of the packages sent abroad contained small publications.

The number and weight of the packages of different classes are indicated in the following table:

	Packages.		Weight.	
	Sent.	Received.	Sent.	Received.
			Pounds.	*Pounds.*
United States parliamentary documents sent abroad	141,884		63,325	
Publications received in return for parliamentary documents		2,557		12,511
United States departmental documents sent abroad	120,093		152,169	
Publications received in return for departmental documents		5,852		18,117
Miscellaneous scientific and literary publications sent abroad	77,461		154,437	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States		29,979		92,257
Total	339,438	38,388	369,931	122,885
Grand total	377,826		492,816	

Although it is true that the United States Government sends abroad more publications than it receives in exchange, the disparity is not so great as appears in the table, for many foreign publications are forwarded by mail to the addresses in this country without passing through the exchanges.

It was stated in the last report that the Government of Roumania had been approached with a view to the reopening of exchange relations with that country, and further that the Institution had arranged directly with the Institutul Meteorologic Central, at Bukharest, to take charge of the forwarding and distributing of exchange consignments. During the past year a communication has been received through the Department of State from the Government of Roumania to the effect that the above-mentioned institute had been designated as the official Roumania Exchange Bureau. A note was received from Roumania, through the Belgian Government, stating that under date of June 5, 1923, the Roumanian Government had declared its adherence to the Brussels Conventions of 1886, providing for the exchange of official documents and scientific and literary publications and the immediate exchange of the official journal. For a number of years the exchange of official documents has been conducted with Roumania, although that country has only recently given its formal adherence to the conventions.

The conditions in Russia and Turkey have not yet improved sufficiently to warrant the Institution in taking steps to establish official exchange bureaus in those countries. The Institution has, however, arranged with the American Friends Service Committee to forward to Russia the large accumulations of scientific and literary publications for correspondents in that country. Two consignments, comprising a total of 70 boxes, have thus far been forwarded to Russia in this way. The Academy of Sciences in Petrograd is acting as the distributing agency.

There were shipped abroad during the year 2,223 boxes, being a decrease of 995 from the number for the preceding 12 months. This decrease in the number of boxes forwarded abroad, in comparison with the number shipped during the previous year, is due partly to the smaller size of many of the publications, to which reference has already been made, and partly to the fact that the number of boxes sent abroad last year was the largest in the history of the service, the usual number being about 2,400 annually. Moreover, packages for certain countries were sent direct to their destination by mail, owing to the fact that a sufficient number had not accumulated to make box shipments when the regular monthly consignments would have been forwarded. About 40,000 packages were forwarded in this manner during the year.

Of the total number of boxes sent abroad 214 contained full sets of United States official documents for foreign depositories and 2,009 included departmental and other publications for the depositories of partial sets and for miscellaneous correspondents.

The number of boxes sent to each country is given in the following table:

Consignments of exchanges for foreign countries.

Country.	Number of boxes.	Country.	Number of boxes.
Argentina	48	Latvia	2
Austria	59	Lithuania	7
Belgium	69	Mexico	4
Brazil	39	Netherlands	68
British Colonies	4	New South Wales	35
Canada	16	New Zealand	19
Chile	23	Nicaragua	2
China	79	Norway	33
Colombia	16	Paraguay	2
Costa Rica	10	Peru	12
Cuba	4	Poland	40
Czechoslovakia	80	Portugal	16
Danzig	2	Queensland	12
Denmark	36	Roumania	19
Egypt	9	Russia	70
Esthonia	9	South Australia	18
Far Eastern Republic	2	Spain	30
Finland	13	Sweden	74
France	170	Switzerland	64
Germany	295	Tasmania	5
Great Britain and Ireland	333	Union of South Africa	30
Greece	8	Uruguay	13
Haiti	2	Venezuela	7
Hungary	31	Victoria	39
India	52	Western Australia	5
Italy	96	Yugoslavia	18
Japan	65		
			2,223

FOREIGN DEPOSITORIES OF UNITED STATES GOVERNMENTAL DOCUMENTS.

In accordance with the terms of a convention concluded at Brussels March 15, 1886, and under authority granted by Congress in resolutions approved March 2, 1867, and March 2, 1901, there are now sent through exchange channels regularly to depositories abroad 57 full sets of United States official documents and 38 partial sets.

DEPOSITORIES OF FULL SETS.

Argentina: Ministerio de Relaciones Exteriores, Buenos Aires.
Australia: Library of the Commonwealth Parliament, Melbourne.
Austria: Bundesamt für Statistik, Schwarzenbergstrasse 5, Vienna I.
Baden: Universitäts-Bibliothek, Freiburg. (Depository of the State of Baden.)
Bavaria: Staats-Bibliothek, Munich.
Belgium: Bibliothèque Royale, Brussels.
Brazil: Bibliotheca Nacional, Rio de Janeiro.

BUENOS AIRES: Biblioteca de la Universidad Nacional de La Plata. (Depository of the Province of Buenos Aires.)
CANADA: Library of Parliament, Ottawa.
CHILE: Biblioteca del Congreso Nacional, Santiago.
CHINA: American-Chinese Publication Exchange Department, Shanghai Bureau of Foreign Affairs, Shanghai.
COLOMBIA: Biblioteca Nacional, Bogotá.
COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
CUBA: Secretaria de Estado (Asuntos Generales y Canje Internacional), Habana.
CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.
DENMARK: Kongelige Bibliotheket, Copenhagen.
ENGLAND: British Museum, London.
FRANCE: Bibliothèque Nationale, Paris.
GERMANY: Deutsche Reichstags-Bibliothek, Berlin.
GLASGOW: City Librarian, Mitchell Library, Glasgow.
GREECE: Bibliothèque Nationale, Athens.
HAITI: Secrétaire d'Etat des Relations Extérieures, Port au Prince.
HUNGARY: Hungarian House of Delegates, Budapest.
INDIA: Imperial Library, Calcutta.
IRELAND: National Library of Ireland, Dublin.
ITALY: Biblioteca Nazionale Vittorio Emanuele, Rome.
JAPAN: Imperial Library of Japan, Tokyo.
LONDON: London School of Economics and Political Science. (Depository of the London County Council.)
MANITOBA: Provincial Library, Winnipeg.
MEXICO: Instituto Bibliográfico, Biblioteca Nacional, Mexico.
NETHERLANDS: Bibliotheek van de Tweede Kamer der Staten-Generaal, The Hague.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
NEW ZEALAND: General Assembly Library, Wellington.
NORWAY: Storthingets Bibliothek, Christiania.
ONTARIO: Legislative Library, Toronto.
PARIS: Préfecture de la Seine.
PERU: Biblioteca Nacional, Lima.
POLAND: Bibliothèque du Ministère des Affaires Etrangères, Warsaw.
PORTUGAL: Bibliotheca Nacional, Lisbon.
PRUSSIA: Preussische Staatsbibliothek, Berlin, N. W. 7.
QUEBEC: Library of the Legislature of the Province of Quebec, Quebec.
QUEENSLAND: Parliamentary Library, Brisbane.
RUSSIA: Shipments temporarily suspended.
SAXONY: Landesbibliothek, Dresden-N.
SOUTH AUSTRALIA: Parliamentary Library, Adelaide.
SPAIN: Servicio del Cambio Internacional de Publicaciones, Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos, Madrid.
SWEDEN: Kungliga Biblioteket, Stockholm.
SWITZERLAND: Bibliothèque Fédérale Centrale, Berne.
TASMANIA: Parliamentary Library, Hobart.
TURKEY: Shipments temporarily suspended.
UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.

VENEZUELA: Biblioteca Nacional, Caracas.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
WURTTEMBERG: Landesbibliothek, Stuttgart.
YUGOSLAVIA: Ministère des Affaires Etrangères, Belgrade.

DEPOSITORIES OF PARTIAL SETS.

ALBERTA: Provincial Library, Edmonton.
ALSACE-LORRAINE: Bibliothèque Universitaire et Régionale de Strasbourg, Strasbourg.
BOLIVIA: Ministerio de Colonización y Agricultura, La Paz.
BRAZIL: Bibliotheca da Assemblea Legislativa do Estado do Rio de Janeiro, Nictheroy.
BREMEN: Senatskommission für Reichs- und Auswärtige Angelegenheiten.
BRITISH COLUMBIA: Legislative Library, Victoria.
BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.
BULGARIA: Ministère des Affaires Etrangères, Sofia.
CEYLON: Colonial Secretary's Office (Record Department of the Library), Colombo.
ECUADOR: Biblioteca Nacional, Quito.
EGYPT: Bibliothèque Khédiviale, Cairo.
FINLAND: Central Library of the State, Helsingfors.
GUATEMALA: Secretary of the Government, Guatemala.
HAMBURG: Senatskommission für die Reichs- und Auswärtigen Angelegenheiten.
HESSE: Landesbibliothek, Darmstadt.
HONDURAS: Secretary of the Government, Tegucigalpa.
JAMAICA: Colonial Secretary, Kingston.
LATVIA: Ministry of Foreign Affairs, Riga.
LIBERIA: Department of State, Monrovia.
LOURENÇO MARQUEZ: Government Library, Lourenço Marquez.
LÜBECK: President of the Senate.
MADRAS, PROVINCE OF: Chief Secretary to the Government of Madras, Public Department, Madras.
MALTA: Lieutenant Governor, Valetta.
NEW BRUNSWICK: Legislative Library, Fredericton.
NEWFOUNDLAND: Colonial Secretary, St. John's.
NICARAGUA: Superintendente de Archivos Nacionales, Managua.
NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.
PANAMA: Secretaria de Relaciones Exteriores, Panama.
PARAGUAY: Oficina General de Inmigracion, Asuncion.
PRINCE EDWARD ISLAND: Legislative Library, Charlottetown.
ROUMANIA: Academia Romana, Bukharest.
SALVADOR: Ministerio de Relaciones Exteriores, San Salvador.
SASKATCHEWAN: Government Library, Regina.
SIAM: Department of Foreign Affairs, Bangkok.
STRAITS SETTLEMENTS: Colonial Secretary, Singapore.
SWITZERLAND: Library of the League of Nations, Palace of Nations, Quai de Leman, Geneva.
UNITED PROVINCES OF AGRA AND OUDH: Undersecretary to Government, Allahabad.
VIENNA: Bürgermeister-Amt der Stadt Wien.

INTERPARLIAMENTARY EXCHANGE OF OFFICIAL JOURNALS.

The interparliamentary exchange is carried on by this institution in behalf of the United States Government in accordance with authority granted in a congressional resolution approved March 4, 1909, the purpose of that resolution being to carry into effect the provisions of the second convention concluded at Brussels, March 15, 1886, providing for the immediate exchange of the Official Journal, as well as of the parliamentary annals and documents, to which the United States was one of the signatories.

A complete list of the countries now taking part in this exchange is given below, together with the names of the establishments to which the daily issue of the Congressional Record is mailed:

ARGENTINA: Biblioteca del Congreso Nacional, Buenos Aires.
AUSTRALIA: Library of the Commonwealth Parliament, Melbourne.
AUSTRIA: Bibliothek des Nationalrates, Wien I.
BADEN: Universitäts-Bibliothek, Heidelberg.
BELGIUM: Bibliothèque de la Chambre des Représentants, Brussels.
BOLIVIA: Cámara de Diputados, Congreso Nacional, La Paz.
BRAZIL: Bibliotheca do Congresso Nacional, Rio de Janeiro.
BUENOS AIRES: Biblioteca del Senado de la Provincia de Buenos Aires, La Plata.
CANADA:
  Library of Parliament, Ottawa.
  Clerk of the Senate, Houses of Parliament, Ottawa.
COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
CUBA:
  Biblioteca de la Cámara de Representantes, Habana.
  Biblioteca del Senado, Habana.
CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.
DENMARK: Rigsdagens Bureau, København.
ESTHONIA: Riigiraamatukogu, Reval.
FRANCE:
  Bibliothèque de la Chambre des Députés, au Palais Bourbon, Paris.
  Bibliothèque du Sénat, au Palais du Luxembourg, Paris.
GREAT BRITAIN: Library of the Foreign Office, Downing Street, London, S. W. 1.
GREECE: Library of Parliament, Athens.
GUATEMALA: Biblioteca de la Oficina Internacional Centro-Americana, 8a Calle Poniente No. 1, Ciudad de Guatemala.
HONDURAS: Biblioteca del Congreso Nacional, Tegucigalpa.
HUNGARY: Bibliothek des Abgeordnetenhauses, Budapest.
ITALY:
  Biblioteca della Camera dei Deputati, Palazzo di Monte Citorio, Rome.
  Biblioteca del Senato del Regno, Palazzo Madama, Rome.
LIBERIA: Department of State, Monrovia.
NEW SOUTH WALES: Library of Parliament, Sydney.
NEW ZEALAND: General Assembly Library, Wellington.
PERU: Cámara de Diputados, Congreso Nacional, Lima.
POLAND: Monsieur le Ministre des Affaires Etrangères, Warsaw.
PORTUGAL: Bibliotheca do Congresso da Republica, Lisbon.

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  Biblioteca del Senado, Madrid.
SWITZERLAND:
  Bibliothèque de l'Assemblée Fédérale Suisse, Berne.
  Library of the League of Nations, Geneva.
TRANSVAAL: State Library, Pretoria.
UNION OF SOUTH AFRICA: Library of Parliament, Cape Town.
URUGUAY: Biblioteca de la Cámara de Representantes, Montevideo.
VENEZUELA: Cámara de Diputados, Congreso Nacional, Carácas.
WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.
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EGYPT: Government Publications Office, Printing Department, Bulaq, Cairo.
ESTHONIA: State Library, Reval.
FAR EASTERN REPUBLIC: Teachers' College of the Far Eastern Republic, Vladivostok.
FINLAND: Delegation of the Scientific Societies of Finland, Helsingfors.
FRANCE: Service Français des Échanges Internationaux, 110 Rue de Grenelle, Paris.
GERMANY: Amerika-Institut, Universitätstrasse 8, Berlin, N. W. 7.
GREAT BRITAIN AND IRELAND: Messrs. Wheldon & Wesley, 2, 3, and 4 Arthur St., New Oxford St., London, W. C. 2.
GREECE: Bibliothèque Nationale, Athens.
GREENLAND, *via* Denmark.
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HAITI: Secrétaire d'Etat des Relations Extérieures, Port au Prince.
HONDURAS: Biblioteca Nacional, Tegucigalpa.
HUNGARY: Dr. Julius Pikler, Fövárosi Telekértéknyilvántartó Hivatal (City Land Valuation Office), Központi Városház, Budapest IV.
ICELAND, *via* Denmark.
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NETHERLANDS: Bureau Scientifique Central Néerlandais, Bibliothèque de l'Académie technique, Delft.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
NEW ZEALAND: Dominion Museum, Wellington.
NICARAGUA: Ministerio de Relaciones Exteriores, Managua.
NORWAY: Kongelige Norske Frederiks Universitet, Bibliotheket, Christiania.
PANAMA: Secretaria de Relaciones Exteriores, Panama.
PARAGUAY: Servicio de Canje Internacional de publicaciones, Sección Consular y de Comercio, Ministerio de Relaciones Exteriores, Asuncion.
PERU: Oficina de Reparto, Depósito y Canje Internacional de Publicaciones, Ministerio de Fomento, Lima.
POLAND: Bibliothèque du Ministère des Affaires Étrangères, Warsaw.
PORTUGAL: Secção de Trocas Internacionaes, Bibliotheca Nacional, Lisbon.

QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.
ROUMANIA: Institutul Meteorologic Central, Ministerul Agriculturei, Bukharest.
RUSSIA: Academy of Sciences, Petrograd.
SALVADOR: Ministerio de Relaciones Exteriores, San Salvador.
SIAM: Department of Foreign Affairs, Bangkok.
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SPAIN: Servicio del Cambio Internacional de Publicaciones, Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos, Madrid.
SUMATRA, *via* Netherlands.
SWEDEN: Kongliga Svenska Vetenskaps Akademien, Stockholm.
SWITZERLAND: Service des Echanges Internationaux, Bibliothèque Fédérale Centrale, Berne.
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URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.
VENEZUELA: Biblioteca Nacional, Carácas.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
YUGOSLAVIA: Académie Royal Serbe des Sciences et des Arts, Belgrade.

Mr. Henry A. Parker and Mr. John S. Pollock were retired August 20, 1922, under the provisions of the governmental retirement act. Mr. Parker was connected with the Institution for 42 years, and Mr. Pollock, 44 years.

Respectfully submitted.

C. G. ABBOT,
Assistant Secretary,
In Charge of Library and Exchanges.

DR. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

APPENDIX 6.

REPORT ON THE NATIONAL ZOOLOGICAL PARK.

Sir: I have the honor to submit the following report on the operations of the National Zoological Park for the fiscal year ending June 30, 1923:

Since the expenses of the National Zoological Park, like those of some other activities of the Federal Government, are borne in part by the District of Columbia, the Bureau of the Budget has, with the initiation of the budget law and for purposes of accounting, included the estimates of the park within the District bill. The act making appropriations for the Government of the District of Columbia and other activities chargeable in whole or in part against the revenue of such District, approved June 29, 1922, contained an item of $125,000 for the regular maintenance of the park. As an addition to the continuing appropriations available from former years for the purchase of land near the Adams Mill Road entrance, there was appropriated by Congress in the second deficiency bill approved January 22, 1923, the sum of $3,096.34 to complete the sum of $8,000 necessary for the termination of this purchase. The bill providing for printing and binding, Smithsonian Institution, contained an allotment of $300 for the National Zoological Park. This was an increase of $100 over former allotments, which had, during recent years, been insufficient for the needs of the park.

Considerable progress has been made during the year in the work of preparing for use the area between the great flight cage and the main road in the western part of the park. This work was begun seven years ago but was discontinued during the war. Other minor repairs and improvements have been made, and much effort has been expended in beautifying the grounds, particularly in the parts of the park most used by the public. The value of the collection is greater than ever before; more species of animals are on exhibition and the actual number of specimens of all kinds is greater than in any previous year. Attendance records, for the fourth successive year, have exceeded 2,000,000 visitors.

ACCESSIONS.

Gifts.—The number of animals presented by friends of the park shows continued and gratifying increase from year to year. During the past year 266 specimens were thus added to the collection. Many of these are of particular value and, as in the previous year, special mention should be made of important contributions from tropical America.

Hon. Henry D. Baker, American consul at Trinidad, West Indies, and Mr. William J. La Varre, of Georgetown, British Guiana, both continued their gifts of South American animals. Interesting birds, mammals, and reptiles were received from Mr. Baker, and included in the collections made by Mr. La Varre were two fine specimens of the dusky parrot (*Pionus fuscus*), a species of special interest to the park. Mr. Gordon MacCreagh, of New York City, collected and presented a specimen of the Brazilian red ouakari monkey (*Cacajao rubicundus*), a species rarely seen in captivity and never before represented, apparently, in any zoological garden in the United States. Like the other members of its genus this monkey is very difficult to keep, but this specimen presented by Mr. MacCreagh lived in the park from August 25, 1922, until April 24, 1923, a period of eight months. Among other animals from Mr. MacCreagh was a specimen of the matamata turtle (*Chelys fimbriata*).

Dr. William M. Mann, of the Bureau of Entomology, while engaged in work in southern Mexico, collected for the park a number of interesting animals. Of special interest in Doctor Mann's collection are two Mexican spider monkeys, four Maw's turtles, and eight specimens of Petz's paroquet. The turtle and the paroquet are species new to the park records. Dr. C. Bonne, of Moengo, Surinam, presented to the park a fine young tapir; and Mr. C. E. Bergman, of Norfolk, Va., contributed a specimen of the Magellan fox from Chile, a species not before shown in the park.

The Canadian Government, through Hon. J. B. Harkin, Commissioner of Dominion Parks, presented five Rocky Mountain goats from the preserves at Banff, Alberta, and six young great black-backed gulls from Nova Scotia. The Department of Conservation, State of Michigan, through Mr. W. H. Rowett, State warden, contributed a female timber wolf from the Porcupine Mountains, Gogebic County, Mich.

Mr. Victor J. Evans, of Washington, D. C., continuing his active interest in the collection, contributed a number of desirable animals, among them being specimens of the frogmouth (*Podargus strigoides*) and New Guinea fruit pigeon (*Lamprotreron superba*).

Ninety-nine individual donors contributed to the collection during the year. The complete list is as follows:

Miss Ella Abbott, Lansing, Mich., Florida gallinule.

Dr. Arthur A. Allen, Ithaca, N. Y., 8 canvasbacks.

Mr. Frank Amorosa, Washington, D. C., 5 sparrow hawks.

Mr. H. M. Atherton, Washington, D. C., sparrow hawk.

Hon. Henry D. Baker, Trinidad, B. W. I., douroucouli, curassow, snowy egret, 2 American egrets, and 2 South American tortoises.

Mrs. L. B. Batkins, South Richmond, Va., raccoon.

Mr. Walter M. Bauman, Washington, D. C., woodchuck.

Mr. C. E. Bergman, Norfolk, Va., Magellan fox.

Mrs. V. L. Blankenship, Richmond, Va., great horned owl.

Dr. C. Bonne, Moengo, Surinam, Brazilian tapir.

Mr. Maurice K. Brady, Washington, D. C., 4 spreading adders.

Dr. E. W. Brandes, Department of Agriculture, Washington, D. C., scarlet king snake.

Mr. E. O. Breeden, Radford, Va., barn owl.

Mr. Colvin B. Brown, Washington, D. C., alligator.

Canadian Government, through Hon. J. B. Harkin, 5 Rocky Mountain goats and 6 great black-backed gulls.

Mrs. A. J. Clapp, Washington, D. C., canary.

Miss May S. Clark, Washington, D. C., horned toad.

Mr. Samuel Hopkins Clark, Ellicott City, Md., red fox.

Mr. A. W. Claver, Laurel, Md., golden eagle.

Mr. C. E. Conner, Lewisburg, W. Va., golden eagle.

Mr. W. C. Cox, Washington, D. C., box-turtle.

Rev. Philip Ayers Dales, Washington, D. C., horned toad.

Mrs. Edward R. Davis, Mountain Lake Park, Md., red fox.

Mr. C. Dowling, Washington, D. C., tayra and two boa constrictors.

Sergt. J. J. Doyle, Marine Barracks, Washington, D. C., great horned owl.

Mr. William Driesbach, Washington, D. C., Virginia opossum.

Mr. George Duquette, Belleview, Md., coyote.

Mr. George Eastment, Washington, D. C., canary.

Mr. Henry Parsons Erwin, Washington, D. C., 2 alligators.

Mr. Victor J. Evans, Washington, D. C., ruffed lemur, Arabian baboon, 2 zebra-ass hybrids, 2 gray spider monkeys, 2 Gould's monitors, 2 western diamond rattlers, fruit pigeon, frogmouth, screech owl, ostrich, American egret, 2 shining starlings, and 5 great white herons.

Dr. N. S. Ferris, Washington, D. C., cardinal.

Mr. V. M. Fookes, Washington, D. C., horned toad.

Mrs. Edw. J. Gardiner, Washington, D. C., double yellow-head parrot.

Mr. W. G. Gossom, Haymarket, Va., banded rattlesnake.

Mrs. E. S. Grimsley, Washington, D. C., canary.

Mrs. J. B. Harding, Washington, D. C., 3 painted turtles.

Hon. Warren G. Harding, White House, Washington, D. C., Virginia opossum.

Mrs. Nannie M. Hawkins, Washington, D. C., Virginia opossum.

Prof. A. L. Herrera, Mexico, D. F., Mexico, tree iguana and Mexican gopher tortoise.

Mr. Otis B. Hinnant, Wilmington, N. C., 6 diamond-back rattlers.

Mrs. John S. Hord, Washington, D. C., black-faced Gouldian finch and 2 Java sparrows.

Mr. Worthington Houghton, Washington, D. C., horned toad.

Commander J. C. Hunsaker, Washington, D. C., 2 Florida raccoons.

Mr. J. Roland Johnston, Bethesda, Md., diamond-back rattler.

Mrs. J. R. Ketner, Washington, D. C., 2 canaries.

Mrs. Sam Kite, Washington, D. C., alligator.

Mr. C. Hubert Kreh, Frederick, Md., copperhead.

Mr. R. R. Lambert, Washington, D. C., muscovy duck.

Mr. W. J. La Varre, jr., Georgetown, British Guiana, coatimundi, 2 capybaras, 2 weeping capuchins, 6 titi monkeys, blue-and-yellow macaw, 2 dusky parrots, and 50 blue-winged parrotlets.

Hon. Gordon Lee, Washington, D. C., barn owl.

Mr. Manoel de Oliveira Lima, Washington, D. C., curió and white-bellied seedeater.

Mrs. F. S. Lincoln, Washington, D. C., 2 alligators.

Mr. H. J. Long, Fallon, Nev., 2 golden eagles.

Mrs. Dangerfield Love, Washington, D. C., 2 strawberry finches.

Mrs. W. D. Lynham, Washington, D. C., canary.

Mr. Gordon MacCreagh, New York City, red ouakari monkey, matamata turtle, and South American tortoise.

Dr. William M. Mann, Washington, D. C., tree porcupine, 2 spider monkeys, 4 Maw's turtles, 4 Central American cooters, lesser white-fronted parrot, 2 San Lucas house finches, and 8 Petz's paroquets.

Dr. C. B. Masson, Washington, D. C., copperhead.

Mr. William Matthews, Washington, D. C., canary.

Mrs. L. E. McLaren, Washington, D. C., alligator.

Mr. R. Mehrlich, Washington, D. C., chameleon.

Mr. John A. Meyers, Washington, D. C., 2 red-shouldered hawks.

Dr. James F. Mitchell, Washington, D. C. marine iguana.

Dr. MacD. Moore, Washington, D. C., black snake.

Mrs. R. L. Myers, Washington, D. C., alligator.

New York Zoological Society, Bronx Park, N. Y., ground hornbill.

North Dakota Fish and Game Commission, through Mr. E. T. Judd, Cando, N. Dak., two Canada geese.

Mr. J. R. Page, jr., Aberdeen, N. C., two spreading adders.

Dr. Theophilus S. Painter, Austin, Tex., two armadillos.

Mr. J. E. Pankin, Washington, D. C., gray parrot.

Mr. H. W. Peck, Washington, D. C., alligator.

Mr. C. Roberts Perkins, Elkton, Md., alligator.

Mrs. Rose Las Pinas, Washington, D. C., sparrow hawk.

Miss Appolonia Ramicy, Washington, D. C., two canaries.

Mr. Harwood E. Reed, Washington, D. C., Java finch.

Mr. Earl D. Reid, Washington, D. C., pilot black snake.

Mr. F. H. Riley, Washington, D. C., great horned owl.

Mr. H. L. Robinson, Washington, D. C., two Cuban parrots.

Mr. W. H. Rowett, Bessemer, Mich., timber wolf.

Lieut. H. Herman Rudolph, Washington, D. C., two ring-necked pheasants.

Mrs. Whitefield Sammis, Washington, D. C., yellow-naped parrot.

Maj. C. R. Sanderson, Washington, D. C., red-and-blue-and-yellow macaw.

Mrs. Samuel Saylor, Washington, D. C., barn owl.

Mrs. N. Scanland, Ballston, Va., American crow.

Mr. William Scheible, Washington, D. C., wood duck.

Capt. T. A. Secor, U. S. M. C., Washington, D. C., Panama titi monkey.

Mr. George Shelton, Indian Head, Md., bald eagle.

Dr. R. W. Shufeldt and Mr. Maurice K. Brady, Washington, D. C., painted turtle, musk turtle, and 2 Pennsylvania musk turtles.

Mr. Maynard Simmons, Washington, D. C., horned toad.

Mr. W. N. Slye, Washington, D. C., alligator.

Mr. Ernest Smoot, Washington, D. C., ring-necked pheasant.

Mrs. Anna P. Stewart, Washington, D. C., 2 canaries.

Mr. P. J. Talbot, Washington, D. C., yellow-naped parrot.

Messrs. Thourez and Smith, Los Angeles, Calif., green guenon.

Mr. Clarence Turner, Latonia, Ky., black bear.

Mr. J. S. Warmbath, Washington, D. C., red-tailed hawk.

Dr. David White, Washington, D. C., alligator.

Mr. C. H. Wilson, Washington, D. C., barred owl.

Mr. Charles H. Zier, Washington, D. C., Virginia opossum.

Births.—During the year 51 mammals were born and 29 birds were hatched in the park. These records include only such as are reared to a reasonable age, no account being made in these published statistics of young that live only a few days. Mammals born include: European bear, 3; lion, 3; dingo, 3; gray wolf, 4; raccoon, 2; mountain goat, 1; tahr, 1; bison, 2; Indian buffalo, 1; guanaco, 2; llama, 2; red deer, 7; American elk, 2; barasingha, 1; Japanese deer, 6; hog deer, 1; Virginia deer, 2; Trinidad agouti, 1; rhesus monkey, 2; mona, 1; rufus-bellied wallaby, 3; great red kangaroo, 1. Birds hatched were of the following species: Mallard, black duck, wood duck, silver pheasant, peafowl, and black-crowned night heron.

Exchanges.—Specimens received in exchange for surplus stock include 27 mammals and 21 birds. Special mention should be made of two Greenland musk oxen imported by way of Norway, the first ever to be shown in the park; two mouflons, the wild sheep of Corsica and Sardinia; a fine male nilgai from India; a clouded leopard, marbled cat (*Felis marmorata*), and fire cat (*Ailurin planiceps*) from Sumatra; a male panda from India; 2 black and 2 fulvous lemurs; and a two-toed sloth. Birds received in exchange include, besides other more common species, 3 kagus, 2 Victoria crowned pigeons, 3 black-head ibises, 2 falcated ducks, and 2 eagle owls.

Purchases.—Among the mammals purchased during the year were 2 Alaska Peninsula bear cubs, 2 Alaskan black-tailed deer, an ocelot, and 2 otters. Birds purchased include some very desirable specimens: 2 Marquesan doves, 2 red-breasted mergansers, 2 sooty shearwaters, 4 wood ibises, and a gannet. A number of more common water birds, cage birds, eagles, and owls, as well as a number of reptiles, were also acquired by purchase.

Transfers.—Among the animals received by transfer from other Government departments special mention should be made of a shipment of 36 specimens of the Laysan finch, collected by Dr. Alexander Wetmore while engaged in work for the Biological Survey, Department of Agriculture, on the island bird reservations west of Hawaii.

The Laysan "finch" (*Telespyza cantans*) is a member of an interesting family of birds that is restricted to the Hawaiian Islands. The specimens sent by Doctor Wetmore were all collected on Midway Island. Some wood ducks, canvasbacks, and a collared lizard were also received by transfer from the Biological Survey.

The Bureau of Fisheries, Department of Commerce, donated a collection of 18 snakes of 5 species that were collected by Mr. F. E. Hare at the biological station, Manchester, Iowa.

REMOVALS.

Surplus mammals and birds to the number of 66 were sent away during the year in exchange to other zoological gardens. Among these were the following mammals that had been born and reared in the park: Siberian tiger, 4; dingo, 1; red deer, 8; barasingha, 3; hog deer, 2; Rocky Mountain sheep, 1; bison, 1; hippopotamus, 1; Trinidad agouti, 2; rhesus monkey, 1.

A number of animals on deposit were returned to owners.

The death rate has again been kept at a very low mark. Except for the loss of nine kangaroos from necrobacillosis, there has been no evidence of contagion among the animals. Some of the losses of animals long in the collection are as follows: A sandhill crane (*Grus mexicana*) received January 30, 1899, died April 17, 1923, from enteritis, after 24 years, 2 months, and 18 days in the park. The great black-backed gull, "Billy," well known to thousands of park visitors because of his long residence and sociable nature, died April 13, 1923. "Billy" came to the park from Labrador on November 22, 1905, and had thus been on exhibition for 17 years, 4 months, and 22 days. A male of the northern wild cat (*Lynx uinta*) received September 3, 1907, died of old age on December 30, 1922, 15 years, 3 months, and 27 days after his arrival. A female guanaco received January 20, 1908, died of disseminated tumors, after 14 years, 8 months, and 26 days in the park, on October 16, 1922. The South American condor, male, received October 31, 1908, died June 15, 1923, 14 years, 7 months, and 15 days after arrival. The cause of death, apparently, was lead poisoning, the bird having in some manner swallowed a piece of lead of considerable size. A female llama received March 14, 1908, died of anemia, July 25, 1922, after a life of 14 years, 4 months, and 11 days in the park. A male barasingha deer (*Cervus duvaucelii*) received October 1, 1908, died January 10, 1923, 14 years, 3 months, and 9 days after arrival. A female rhea (*Rhea americana*) received October 8, 1909, died May 1, 1923, after 13 years, 6 months, and 23 days in the collection. A female brown macaque (*Macaca speciosa*) received July 30, 1910, died May 26, 1923, of broncho-pneumonia, after a life in the park of 12 years, 9 months, and 26 days. A boatbill heron (*Cochlearius cochlearius*) received September 28, 1910, died from congestion of the lungs, 12 years, 6 months, and 18 days later, on April 15, 1923. The mate of this bird, received with it, is still living. A female Woodhouse's wolf (*Canis frustror*), born in the park April 17, 1911, died at an age of 11 years, 3 months, and 15 days, on August 1, 1922. Two male Madagascar weavers (*Foudia madagascariensis*), received June 28, 1912, died on September 9 and October 14, 1922, respectively; a record of 10 years, 3 months, and 16 days, for one of the birds.

One of the most serious losses of the year was that of the female whooping crane (*Grus americanus*), which died of aspergillosis on April 16, 1923. The bird had always appeared in good health up to shortly before its death; it was still comparatively young, and had been in the collection since April 13, 1914, a period of nine years and three days. It is perhaps doubtful if this rare species will ever again be on exhibition in the park. Other serious losses include a female Rocky Mountain goat, June 13, 1923, metritis; giant anteater, October 29, 1922; red ouakari monkey (*Cacajao rubicundus*), April 24, 1923; frogmouth, November 1, 1922, tapeworm infestation; and the Indian jabiru, March 29, 1923, from gastroenteritis.

As heretofore, postmortem examinations were made in most cases by the pathological division of the Bureau of Animal Industry. Fifteen examinations were made by Dr. Adolph H. Schultz, of the Carnegie Institution, Laboratory of Embryology, and one by specialists at St. Elizabeths Hospital, Department of the Interior. The following list shows the results of autopsies, the cases being arranged by groups:

CAUSES OF DEATH.

MAMMALS.

Marsupialia: Gastritis, 1; gastroenteritis, 1; necrobacillosis, 9; accident, 2.

Carnivora: Pneumonia, 1; enteritis, 3; gastroenteritis and parasitism, 1; internal hemorrhage, 1; goitre and internal hemorrage, 1; no cause found, 1.

Rodentia: Hypernephroma, 1; disseminated tumor, 1.

Primates: Bronchopneumonia, 1; tuberculosis, 1; enteritis, 2; streptococcus infection, 1; internal hemorrhage, 1; congestive apoplexy, 1; cage paralysis, 1; inanition, 1.

Artiodactyla: Pneumonia and metritis, 1; tuberculosis, 3; pleurisy, 1; enteritis, 1; gastroenteritis, 2; disseminated tumor, 1; malnutrition, 1; anemia, 1; accident, 1.

Edentata: Pneumonia, 1; pericarditis, 1.

BIRDS.

Ratitæ: Enteritis, 1; accident, 2.

Ciconiiformes: Congestion of lungs, 1; enteritis, 1; gastroenteritis, 1; no cause found, 3.

Anseriformes: Tuberculosis, 1; gastritis, 1; enteritis, 1; inflammation of ceca, 1; no cause found, 4.

Falconiformes: Lead poisoning, 1; no cause found, 1.

Galliformes: No cause found, 1.

Gruiformes: Aspergillosis, 2; enteritis, 2.

Charadriiformes: Tuberculosis, 1; enteritis, 1; no cause found, 1.

Psittaciformes: Enteritis, 1.

Coraciiformes: Aspergillosis, 1; tapeworm infestation, 1.

Passeriformes: No cause found, 1.

A total of 48 specimens—11 mammals, 20 birds, and 17 reptiles—of special scientific value, were transferred after death to the United States National Museum. A number of eggs of rare birds were also transferred to the Museum. At the request of the Carnegie Laboratory of Embryology, Johns Hopkins Medical School, Baltimore, 27 specimens, mostly mammals, were delivered to that institution for anatomical purposes. One mammal was sent to St. Elizabeths Hospital, Washington, D. C., for special study of the brain. A few skins of cage birds were saved for the reference collection at the park.

ANIMALS IN THE COLLECTION JUNE 30, 1923.

MAMMALS.

MARSUPIALIA.

Virginia opossum (*Didelphis virginiana*)	4
Australian opossum (*Trichosurus vulpecula*)	2
Flying phalanger (*Petaurus breviceps*)	8
Brush-tailed rock wallaby (*Petrogale pencillata*)	2
Rufous-bellied wallaby (*Macropus billardierii*)	9
Black-faced kangaroo (*Macropus melanops*)	2
Wallaroo (*Macropus robustus*)	2
Red kangaroo (*Macropus rufus*)	6
Wombat (*Phascolomys mitchelli*)	1

CARNIVORA.

Kadiak bear (*Ursus middendorffi*)	2
Alaska Peninsula bear (*Ursus gyas*)	4
Yakutat bear (*Ursus dalli*)	1
Kidder's bear (*Ursus kidderi*)	2
European bear (*Ursus arctos*)	5
Grizzly bear (*Ursus horribilis*)	1
Apache grizzly (*Ursus apache*)	1
Himalayan bear (*Ursus thibetanus*)	1
Black bear (*Ursus americanus*)	3

CARNIVORA—continued.

Cinnamon bear (*Ursus americanus cinnamomum*)	2
Florida bear (*Ursus floridanus*)	1
Glacier bear (*Ursus emmonsii*)	1
Sun bear (*Helarctos malayanus*)	1
Sloth bear (*Melursus ursinus*)	1
Polar bear (*Thalarctos maritimus*)	2
Dingo (*Canis dingo*)	3
Eskimo dog (*Canis familiaris*)	2
Gray wolf (*Canis nubilus*)	6
Timber wolf (*Canis occidentalis*)	1
Texas red wolf (*Canis rufus*)	1
Coyote (*Canis latrans*)	4
Red fox (*Vulpes fulva*)	10
Kit fox (*Vulpes velox*)	2
Great-eared fox (*Otocyon megalotis*)	1
Magellan fox (*Cerdocyon magellanicus*)	1
Gray fox (*Urocyon cinereoargenteus*)	3
Cacomistle (*Bassariscus astutus*)	1
Panda (*Ailurus fulgens*)	2
Raccoon (*Procyon lotor*)	19
Florida raccoon (*Procyon lotor elucus*)	2
Gray coatimundi (*Nasua narica*)	1
Red coatimundi (*Nasua nasua*)	1
Kinkajou (*Potos flavus*)	2

CARNIVORA—continued.

Mexican kinkajou (*Potos flavus aztecus*)	1
Tayra (*Tayra barbara*)	2
American badger (*Taxidea taxus*)	1
Florida spotted skunk (*Spilogale ambarvalis*)	1
Florida otter (*Lutra canadensis vaga*)	3
Palm civet (*Paradoxurus hermaphroditus*)	2
Wahlberg's mongoose (*Helogale parvula*)	1
Aard-wolf (*Proteles cristatus*)	1
Spotted hyena (*Crocuta crocuta*)	1
Striped hyena (*Hyæna hyæna*)	1
African cheetah (*Acinonyx jubatus*)	2
Lion (*Felis leo*)	5
Bengal tiger (*Felis tigris*)	1
Manchurian tiger (*Felis tigris longipilis*)	2
Leopard (*Felis pardus*)	1
East African leopard (*Felis pardus suahelica*)	1
Jaguar (*Felis onca*)	1
Brazilian ocelot (*Felis pardalis brasiliensis*)	2
Snow leopard (*Felis uncia*)	1
Mexican puma (*Felis azteca*)	2
Mountain lion (*Felis hippolestes*)	1
Canada lynx (*Lynx canadensis*)	1
Northern wild cat (*Lynx uinta*)	2
Bay lynx (*Lynx rufus*)	2
Clouded leopard (*Neofelis nebulosa*)	1

PINNIPEDIA.

California sea-lion (*Zalophus californianus*)	2

RODENTIA.

Woodchuck (*Marmota monax*)	3
Dusky marmot (*Marmota flaviventris obscura*)	1
Prairie-dog (*Cynomys ludovicianus*)	5
Antelope squirrel (*Ammospermophilus leucurus*)	1
Chipmunk (*Eutamias neglectus*)	3
Albino squirrel (*Sciurus carolinensis*)	3
Dusky pocket mouse (*Perognathus flavescens perniger*)	1
Bailey's pocket mouse (*Perognathus baileyi*)	1
Kangaroo rat (*Dipodomys spectabilis*)	2
Ord's kangaroo rat (*Perodipus ordii*)	2
Montana white-footed mouse (*Peromyscus leucopus aridulus*)	1
Grasshopper mouse (*Onychomys leucogaster*)	6
African porcupine (*Hystrix africæ-australis*)	1
Malay porcupine (*Acanthion brachyurum*)	2
Tree porcupine (*Coendou mexicanum*)	1

RODENTIA—continued.

Coypu (*Myocastor coypus*)	2
Central American paca (*Cuniculus paca virgatus*)	1
Mexican agouti (*Dasyprocta mexicana*)	1
Sooty agouti (*Dasyprocta fuliginosa*)	1
Speckled agouti (*Dasyprocta punctata*)	2
Panama agouti (*Dasyprocta punctata isthmica*)	1
Azara's agouti (*Dasyprocta azaræ*)	2
Trinidad agouti (*Dasyprocta rubrata*)	3
Crested agouti (*Dasyprocta cristata*)	1
Yellow-rumped agouti (*Dasyprocta lucifer cayennæ*)	1
Peruvian guinea pig (*Cavia tschudii pallidior*)	1
Guinea pig (*Cavia porcellus*)	5
Capybara (*Hydrochœrus hydrochœris*)	2

LAGOMORPHA.

Domestic rabbit (*Oryctolagus cuniculus*)	15

EDENTATA.

Two-toed sloth (*Cholœpus didactylus*)	1

PRIMATES.

Black lemur (*Lemur macaco*)	2
Fulvous lemur (*Lemur fulvus*)	2
Gray spider monkey (*Ateles geoffroyi*)	2
Mexican spider monkey (*Ateles neglectus*)	2
Three-banded douroucouli (*Aotus trivirgatus*)	1
Brown woolly monkey (*Lagothrix infumata*)	1
White-throated capuchin (*Cebus capucinus*)	4
Pale capuchin (*Cebus unicolor*)	2
Weeping capuchin (*Cebus apella*)	2
Brown capuchin (*Cebus fatuellus*)	2
Azara's capuchin (*Cebus azaræ*)	1
Titi monkey (*Saimiri sciureus*)	5
Chacma (*Papio porcarius*)	1
Anubis baboon (*Papio cynocephalus*)	1
East African baboon (*Papio ibeanus*)	1
Mandrill (*Papio sphinx*)	1
Drill (*Papio leucophæus*)	1
Moor macaque (*Cynopithecus maurus*)	1
Barbary ape (*Simia sylvanus*)	2
Japanese macaque (*Macaca fuscata*)	2
Pig-tailed monkey (*Macaca nemestrina*)	1
Burmese macaque (*Macaca andamanensis*)	1
Rhesus monkey (*Macaca rhesus*)	22
Bonnet monkey (*Macaca sinica*)	1
Crab-eating macaque (*Macaca irus*)	1
Javan macaque (*Macaca mordax*)	4
Black mangabey (*Cercocebus aterrimus*)	1

PRIMATES—continued.

Sooty mangabey (*Cercocebus fuliginosus*)	2
Hagenbeck's mangabey (*Cercocebus hagenbecki*)	1
White-collared mangabey (*Cercocebus torquatus*)	1
Green guenon (*Lasiopyga callitrichus*)	2
Vervet guenon (*Lasiopyga pygerythra*)	2
Mona (*Lasiopyga mona*)	4
Roloway guenon (*Lasiopyga roloway*)	1
Chimpanzee (*Pan satyrus*)	1
Orang-utan (*Pongo pygmæus*)	1

ARTIODACTYLA.

Wild boar (*Sus scrofa*)	1
Wart-hog (*Phacochœrus æthiopicus*)	1
Collared peccary (*Pecari angulatus*)	2
Hippopotamus (*Hippopotamus amphibius*)	2
Bactrian camel (*Camelus bactrianus*)	2
Arabian camel (*Camelus dromedarius*)	1
Guanaco (*Lama guanicoe*)	3
Llama (*Lama glama*)	7
Fallow deer (*Dama dama*)	5
Axis deer (*Axis axis*)	3
Hog deer (*Hyelaphus porcinus*)	7
Sambar (*Rusa unicolor*)	2
Barasingha (*Rucervus duvaucelii*)	6
Burmese deer (*Rucervus eldii*)	1
Japanese deer (*Sika nippon*)	19
Red deer (*Cervus elaphus*)	12
Kashmir deer (*Cervus hanglu*)	2
Bedford deer (*Cervus xanthopygus*)	6
American elk (*Cervus canadensis*)	7
Virginia deer (*Odocoileus virginianus*)	9
Panama deer (*Odocoileus chiriquensis*)	1
Black-tailed deer (*Odocoileus columbianus*)	2
Blesbok (*Damaliscus albifrons*)	2
White-tailed gnu (*Connochætes gnou*)	1

ARTIODACTYLA—continued.

Brindled gnu (*Connochætes taurinus*)	1
Lechwe (*Onotragus leche*)	1
Sable antelope (*Egocerus niger*)	1
Indian antelope (*Antilope cervicapra*)	3
Nilgai (*Boselaphus tragocamelus*)	3
East African eland (*Taurotragus oryx livingstonii*)	2
Tahr (*Hemitragus jemlahicus*)	5
Mountain goat (*Oreamnos americanus*)	5
Aoudad (*Ammotragus lervia*)	2
Rocky Mountain sheep (*Ovis canadensis*)	4
Arizona mountain sheep (*Ovis canadensis gaillardi*)	1
Mouflon (*Ovis musimon*)	2
Barbados sheep (*Ovis aries*)	2
Greenland musk-ox (*Ovibos moschatus wardi*)	2
Zebu (*Bos indicus*)	1
Yak (*Poëphagus grunniens*)	5
American bison (*Bison bison*)	13
Indian buffalo (*Bubalus bubalis*)	3

PERISSODACTYLA.

Malay tapir (*Tapirus indicus*)	1
Brazilian tapir (*Tapirus terrestris*)	2
Grant's zebra (*Equus quagga granti*)	1
Grevy's zebra (*Equus grevyi*)	1
Zebra-horse hybrid (*Equus grevyi caballus*)	1
Zebra-ass hybrid (*Equus grevyi-asinus*)	3

PROBOSCIDEA.

Abyssinian elephant (*Loxodonta africana oxyotis*)	1
Sumatran elephant (*Elephas sumatranus*)	2

BIRDS.

RATITÆ.

South African ostrich (*Struthio australis*)	6
Somaliland ostrich (*Struthio molybdophanes*)	2
Nubian ostrich (*Struthio camelus*)	2
Rhea (*Rhea americana*)	1
Sclater's cassowary (*Casuarius philipi*)	1
Emu (*Dromiceius novæhollandiæ*)	2

PROCELLARIIFORMES.

Sooty shearwater (*Puffinus griseus*)	1

CICONIIFORMES.

American white pelican (*Pelecanus erythrorhynchos*)	7
European white pelican (*Pelecanus onocrotalus*)	2
Roseate pelican (*Pelecanus roseus*)	2
Australian pelican (*Pelecanus conspicillatus*)	2

CICONIIFORMES—continued.

Brown pelican (*Pelecanus occidentalis*)	9
Water-turkey (*Anhinga anhinga*)	1
Florida cormorant (*Phalacrocorax auritus floridanus*)	4
Gannet (*Sula bassana*)	1
Great white heron (*Ardea occidentalis*)	7
Goliath heron (*Ardea goliath*)	1
American egret (*Casmerodius egretta*)	5
Snowy egret (*Egretta candidissima*)	1
Black-crowned night heron (*Nycticorax nycticorax nævius*)	45
Boatbill (*Cochlearius cochlearius*)	1
White stork (*Ciconia ciconia*)	2
Black stork (*Ciconia nigra*)	1
Lesser adjutant (*Leptoptilus javanicus*)	1
Wood ibis (*Mycteria americana*)	3
Straw-necked ibis (*Carphibis spinicollis*)	1

CICONIIFORMES—continued.

Sacred ibis (*Threskiornis æthiopicus*)	3
Black-headed ibis (*Threskiornis melanocephalus*)	3
Australian ibis (*Threskiornis strictipennis*)	2
White ibis (*Guara alba*)	11
Scarlet ibis (*Guara rubra*)	4
Roseate spoonbill (*Ajaia ajaja*)	2
European flamingo (*Phœnicopterus roseus*)	1

ANSERIFORMES.

Red-breasted merganser (*Mergus serrator*)	2
Mallard (*Anas platyrhynchos*)	16
Black duck (*Anas rubripes*)	19
Australian black duck (*Anas superciliosa*)	2
Gadwall (*Chaulelasmus streperus*)	3
Falcated duck (*Eunetta falcata*)	2
European widgeon (*Mareca penelope*)	5
Baldpate (*Mareca americana*)	4
Green-winged teal (*Nettion carolinense*)	15
European teal (*Nettion crecca*)	10
Baikal teal (*Nettion formosum*)	6
Blue-winged teal (*Querquedula discors*)	9
Garganey (*Querquedula querquedula*)	6
Cinnamon teal (*Querquedula cyanoptera*)	1
Shoveller (*Spatula clypeata*)	4
Pintail (*Dafila acuta*)	8
Wood duck (*Aix sponsa*)	10
Mandarin duck (*Dendronessa galericulata*)	13
Canvas-back (*Marila valisineria*)	13
European pochard (*Marila ferina*)	4
Redhead (*Marila americana*)	14
Ring-necked duck (*Marila collaris*)	1
Tufted duck (*Marila fuligula*)	4
Lesser scaup duck (*Marila affinis*)	5
Greater scaup duck (*Marila marila*)	11
White-eyed duck (*Marila nyroca*)	1
Rosy-billed pochard (*Metopiana peposaca*)	4
Egyptian goose (*Chenalopex ægyptiacus*)	3
Upland goose (*Chloëphaga leucoptera*)	1
Hawaiian goose (*Nesochen sandvicensis*)	2
Snow goose (*Chen hyperboreus*)	2
Greater snow goose (*Chen hyperboreus nivalis*)	2
Blue goose (*Chen cærulescens*)	7
White-fronted goose (*Anser albifrons*)	4
American white-fronted goose (*Anser albifrons gambeli*)	3
Bean goose (*Anser fabalis*)	2
Bar-headed goose (*Eulabeia indica*)	2
Canada goose (*Branta canadensis*)	11
Hutchins's goose (*Branta canadensis hutchinsii*)	7

ANSERIFORMES—continued.

Cackling goose (*Branta canadensis minima*)	2
Brant (*Branta bernicla glaucogastra*)	10
Barnacle goose (*Branta leucopsis*)	7
Spur-winged goose (*Plectropterus gambensis*)	2
Muscovy duck (*Cairina moschata*)	1
Pied goose (*Anseranas semipalmata*)	2
Black-bellied tree duck (*Dendrocygna autumnalis*)	6
Eyton's tree duck (*Dendrocygna eytoni*)	4
White-faced tree duck (*Dendrocygna viduata*)	1
Mute swan (*Cygnus gibbus*)	2
Whistling swan (*Olor columbianus*)	1
Black swan (*Chenopis atrata*)	2

FALCONIFORMES.

California condor (*Gymnogyps californianus*)	3
Turkey vulture (*Cathartes aura*)	3
Black vulture (*Coragyps urubu*)	1
King vulture (*Sarcoramphus papa*)	2
Secretary bird (*Sagittarius serpentarius*)	1
Griffon vulture (*Gyps fulvus*)	1
African black vulture (*Torgos tracheliotus*)	1
Cinereous vulture (*Aegypius monachus*)	2
Caracara (*Polyborus cheriway*)	2
Wedge-tailed eagle (*Uroaëtus audax*)	2
Golden eagle (*Aquila chrysaëtos*)	7
White-bellied sea eagle (*Cuncuma leucogaster*)	2
Bald eagle (*Haliæetus leucocephalus*)	13
Alaskan bald eagle (*Haliæetus leucocephalus alascanus*)	3
Broad-winged hawk (*Buteo platypterus*)	1
Red-shouldered hawk (*Buteo lineatus*)	3
Red-tailed hawk (*Buteo borealis*)	6
Sparrow hawk (*Falco sparverius*)	7

GALLIFORMES.

Curassow (*Crax daubentoni*)	1
Razor-billed curassow (*Mitu mitu*)	2
Penelope (*Penelope boliviana*)	1
Guan (*Ortalis albiventris*)	1
Chachalaca (*Ortalis vetula*)	1
Peafowl (*Pavo cristatus*)	30
Peacock pheasant (*Polyplectron bicalcaratum*)	1
Silver pheasant (*Gennæus nycthemerus*)	5
Ring-necked pheasant (*Phasianus torquatus*)	10
Bobwhite (*Colinus virginianus*)	1
Gambel's quail (*Lophortyx gambelii*)	2
Valley quail (*Lophortyx californica vallicola*)	1

GRUIFORMES.

East Indian gallinule (*Porphyrio calvus*)	5
Black-tailed moor-hen (*Microtribonyx ventralis*)	2
American coot (*Fulica americana*)	1
South Island weka rail (*Ocydromus australis*)	3
Short-winged weka (*Ocydromus brachypterus*)	2
Earl's weka (*Ocydromus earli*)	1
Sandhill crane (*Grus mexicana*)	1
Little brown crane (*Grus canadensis*)	5
White-necked crane (*Grus leucauchen*)	1
Indian white crane (*Grus leucogeranus*)	1
Lilford's crane (*Grus lilfordi*)	2
Sarus crane (*Grus collaris*)	1
Australian crane (*Grus rubicunda*)	2
Demoiselle crane (*Anthropoides virgo*)	4
Crowned crane (*Balearica pavonina*)	1
White-backed trumpeter (*Psophia leucoptera*)	2
Kagu (*Rhynochetos jubatus*)	4

CHARADRIIFORMES.

Lapwing (*Vanellus vanellus*)	3
Yellow-wattled lapwing (*Lobivanellus indicus*)	1
Pacific gull (*Gabianus pacificus*)	2
Great black-backed gull (*Larus marinus*)	5
Herring gull (*Larus argentatus*)	3
Silver gull (*Larus novæhollandiæ*)	16
Laughing gull (*Larus atricilla*)	2
Victoria crowned pigeon (*Goura victoria*)	2
Australian crested pigeon (*Ocyphaps lophotes*)	5
Bronze-wing pigeon (*Phaps chalcoptera*)	3
Marquesan dove (*Gallicolumba rubescens*)	2
Wonga-wonga pigeon (*Leucosarcia picata*)	3
Wood pigeon (*Columba palumbus*)	7
Mourning dove (*Zenaidura macroura*)	2
Necklaced dove (*Spilopelia tigrina*)	4
Zebra dove (*Geopelia striata*)	3
Bar-shouldered dove (*Geopelia humeralis*)	1
Inca dove (*Scardafella inca*)	2
Cuban ground dove (*Chæmepelia passerina aflavida*)	1
Green-winged dove (*Chalcophaps indica*)	1
New Guinea green dove (*Chalcophaps chrysochlora*)	3
Ringed turtle-dove (*Streptopelia risoria*)	1
Fruit pigeon (*Lamprotreron superba*)	1

CUCULIFORMES.

Road-runner (*Geococcyx californianus*)	1

PSITTACIFORMES.

Kea (*Nestor notabilis*)	4
Cockateel (*Calopsitta novæhollandiæ*)	1
Roseate cockatoo (*Kakatoe roseicapilla*)	18
Bare-eyed cockatoo (*Kakatoe gymnopis*)	1
Leadbeater's cockatoo (*Kakatoe leadbeateri*)	2
White cockatoo (*Kakatoe alba*)	2
Sulphur-crested cockatoo (*Kakatoe galerita*)	9
Great red-crested cockatoo (*Kakatoe moluccensis*)	1
Cassin's macaw (*Ara auricollis*)	1
Mexican green macaw (*Ara mexicana*)	2
Blue-and-yellow macaw (*Ara ararauna*)	3
Red-and-blue-and-yellow macaw (*Ara macao*)	7
Hahn's macaw (*Diopsittaca hahni*)	1
White-eyed paroquet (*Aratinga leucophthalmus*)	1
Petz's paroquet (*Eupsittula canicularis*)	8
Golden-crowned paroquet (*Eupsittula aurea*)	3
Weddell's paroquet (*Eupsittula weddellii*)	4
Blue-winged parrotlet (*Psittacula passerina*)	14
Yellow-winged paroquet (*Tirica virescens*)	1
Golden paroquet (*Brotogeris chrysosema*)	5
Tovi paroquet (*Brotogeris jugularis*)	3
Orange-winged paroquet (*Brotogeris chiriri*)	5
Yellow-naped parrot (*Amazona auropalliata*)	5
Mealy parrot (*Amazona farinosa*)	1
Orange-winged parrot (*Amazona amazonica*)	4
Blue-fronted parrot (*Amazona æstiva*)	1
Red-crowned parrot (*Amazona viridigenalis*)	6
Double yellow-head parrot (*Amazona oratrix*)	9
Yellow-headed parrot (*Amazona ochrocephala*)	4
Festive parrot (*Amazona festiva*)	5
Lesser white-fronted parrot (*Amazona albifrons nana*)	1
Santo Domingo parrot (*Amazona ventralis*)	2
Cuban parrot (*Amazona leucocephala*)	2
Maximilian's parrot (*Pionus maximiliani*)	1

PSITTACIFORMES—continued.

Dusky parrot (*Pionus fuscus*)	2
Blue-headed parrot (*Pionus menstruus*)	3
Amazonian caique (*Pionites xanthomeria*)	7
Short-tailed parrot (*Graydidascalus brachyurus*)	1
Gray parrot (*Psittacus erithacus*)	1
Lesser vasa parrot (*Coracopsis nigra*)	1
Greater vasa parrot (*Coracopsis vasa*)	1
Pennant's paroquet (*Platycercus elegans*)	1
Rosella paroquet (*Platycercus eximius*)	1
Black-tailed paroquet (*Polytelis melanura*)	2
King paroquet (*Aprosmictus cyanopygius*)	2
Ring-necked paroquet (*Conurus torquatus*)	1
Nepalese paroquet (*Conurus nepalensis*)	1
Grass paroquet (*Melopsittacus undulatus*)	27

CORACIIFORMES.

Giant kingfisher (*Dacelo gigas*)	2
Yellow-billed hornbill (*Lophoceros leucomelas*)	2
Barred owl (*Strix varia*)	7
Snowy owl (*Nyctea nyctea*)	1
Screech owl (*Otus asio*)	2
Choliba screech owl (*Otus choliba*)	1
Great horned owl (*Bubo virginianus*)	8
Eagle-owl (*Bubo bubo*)	1
American barn owl (*Tyto perlata pratincola*)	6
Ariel toucan (*Ramphastos ariel*)	1

PASSERIFORMES.

Cock of the rock (*Rupicola rupicola*)	1
Silver-eared hill-tit (*Mesia argentauris*)	2
Red-billed hill-tit (*Liothrix luteus*)	7
Black-gorgeted laughing-thrush (*Garrulax pectoralis*)	2
White-eared bulbul (*Otocompsa leucotis*)	3
European blackbird (*Turdus merula*)	2
Piping crow-shrike (*Gymnorhina tibicen*)	2
Satin bower-bird (*Ptilonorhynchus violaceus*)	1
European raven (*Corvus corax*)	1
Australian crow (*Corvus coronoides*)	1
American crow (*Corvus brachyrhynchos*)	1
Jackdaw (*Corvus monedula*)	1
Yucatan jay (*Cissilopha yucatanica*)	1
Blue jay (*Cyanocitta cristata*)	3
Green jay (*Xanthoura luxuosa*)	1

PASSERIFORMES—continued.

Australian gray jumper (*Struthidea cinerea*)	1
Starling (*Sturnus vulgaris*)	9
Shining starling (*Lamprocorax metallicus*)	4
Laysan finch (*Telespyza cantans*)	36
Crimson tanager (*Ramphocelus dimidiatus*)	1
Blue tanager (*Thraupis cana*)	1
Paradise whydah (*Steganura paradisea*)	1
Shaft-tailed whydah (*Tetrænura regia*)	2
Napolean weaver (*Pyromelana afra*)	1
Red-billed weaver (*Quelea quelea*)	1
Madagascar weaver (*Foudia madagascariensis*)	1
Fire finch (*Lagonosticta senegala*)	1
Strawberry finch (*Amandava amandava*)	8
Nutmeg finch (*Munia punctulata*)	5
White-headed nun (*Munia maja*)	4
Black-headed nun (*Munia atricapilla*)	1
Java finch (*Munia oryzivora*)	4
White Java finch (*Munia oryzivora*)	2
Masked grassfinch (*Poëphila personata*)	7
Black-faced Gouldian finch (*Poëphila gouldiæ*)	4
Red-faced Gouldian finch (*Poëphila mirabilis*)	5
Diamond finch (*Steganopleura guttata*)	5
Zebra finch (*Tæniopygia castanotis*)	20
Cut-throat finch (*Amadina fasciata*)	3
Vera Cruz red-wing (*Agelaius phœniceus richmondi*)	1
Purple grackle (*Quiscalus quiscula*)	3
Greenfinch (*Chloris chloris*)	3
European goldfinch (*Carduelis carduelis*)	4
Bramblefinch (*Fringilla montifringilla*)	5
European siskin (*Spinus spinus*)	1
Mexican goldfinch (*Astragalinus psaltria mexicanus*)	1
House finch (*Carpodacus mexicanus frontalis*)	2
San Lucas house finch (*Carpodacus mexicanus ruberrimus*)	2
Canary (*Serinus canarius*)	22
Green singing finch (*Serinus icterus*)	1
Slate-colored junco (*Junco hyemalis*)	2
White-throated sparrow (*Zonotrichia albicollis*)	3
Song sparrow (*Melospiza melodia*)	1
San Diego song sparrow (*Melospiza melodia cooperi*)	3
Saffron finch (*Sicalis flaveola*)	1
Seed-eater (*Sporophila gutturalis*)	2
Nonpareil (*Passerina ciris*)	5
Cardinal (*Cardinalis cardinalis*)	1

REPTILES.

Alligator (*Alligator mississippiensis*)	68
Marine iguana (*Amblyrhynchus cristatus*)	1
Gila monster (*Heloderma suspectum*)	6
Gould's monitor (*Varanus gouldii*)	3
Rock python (*Python molurus*)	2
Regal python (*Python reticulatus*)	1
Diamond python (*Python spilotes*)	4
Anaconda (*Eunectes murinus*)	2
Boa constrictor (*Constrictor constrictor*)	5
Spreading adder (*Heterodon contortrix*)	7
Blacksnake (*Coluber constrictor*)	7
Blue racer (*Coluber constrictor flaviventris*)	7
Chicken snake (*Elaphe quadrivittata*)	1
Corn snake (*Elaphe guttata*)	1
Pilot blacksnake (*Elaphe obsoleta*)	1
Pine snake (*Pituophis melanoleucus*)	4
Bull-snake (*Pituophis sayi*)	3
Water snake (*Natrix sipedon*)	4
Western water snake (*Natrix sipedon fasciata*)	2
Garter snake (*Thamnophis sirtalis*)	9
Moccasin (*Agkistrodon piscivorus*)	2
Copperhead (*Agkistrodon mokasen*)	2
Banded rattlesnake (*Crotalus horridus*)	1
Diamond-back rattler (*Crotalus adamanteus*)	3
Snapping turtle (*Chelydra serpentina*)	7
Rossignon's snapping turtle (*Chelydra rossignonii*)	1
Maw's turtle (*Dermatemys mawii*)	4
Musk-turtle (*Kinosternon odoratum*)	1
South American musk-turtle (*Kinosternon scorpioides*)	5
Pennsylvania musk-turtle (*Kinosternon subrubrum*)	2
Wood turtle (*Clemmys insculpta*)	1
South American terrapin (*Nicoria punctularia*)	1
Painted turtle (*Chrysemys picta*)	3
Cooter (*Pseudemys scripta*)	1
Central American cooter (*Pseudemys ornata*)	3
Box-tortoise (*Terrapene carolina*)	2
Gopher tortoise (*Gopherus polyphemus*)	4
Mexican gopher tortoise (*Gopherus berlandieri*)	1
Desert tortoise (*Gopherus agassizii*)	1
Duncan Island tortoise (*Testudo ephippium*)	1
Indefatigable Island tortoise (*Testudo porteri*)	1
Albemarle Island tortoise (*Testudo vicina*)	2
South American tortoise (*Testudo denticulata*)	7

STATEMENT OF THE COLLECTION.

Accessions during the year.

	Mammals.	Birds.	Reptiles.	Total.
Presented	47	153	66	266
Born and hatched in National Zoological Park	51	29		80
Received in exchange	27	21		48
Purchased	15	66	27	108
Transferred from other Government departments		40	19	59
Captured			1	1
Deposited	12	6	32	50
Total	152	315	145	612

SUMMARY.

Animals on hand July 1, 1922	1,681
Accessions during the year	612
Total animals handled	2,293
Deduct loss (by exchange, death, and return of animals on deposit)	525
Animals on hand June 30, 1923	1,768

Class.	Species.	Individuals.
Mammals	184	493
Birds	271	1,081
Reptiles	43	194
Total June 30, 1923	498	1,768

The number of species on exhibition on June 30 is 16 more, and the total number of animals is 87 more than in any previous year.

VISITORS.

The total number of visitors to the park, for the fiscal year, as determined by count and estimate, was 2,393,428. This is 229,174 above the official record for 1922, and makes the fourth year in succession that the attendance has exceeded 2,000,000. The greatest attendance in any one month was 330,700 in May, 1923.

The attendance by months was as follows:

1921.		1922.	
July	192, 400	January	57, 452
August	216, 500	February	80, 558
September	251, 800	March	232, 715
October	215, 500	April	275, 052
November	148, 400	May	330, 700
December	87, 051	June	304, 900

Schools, classes, and other organizations visiting the park during the year numbered 171, with a total of 14,185 individuals.

IMPROVEMENTS.

The complete reconstruction of the wolf and fox dens below the sea lion pool was finished early in the year. The quarters for these animals are now much more comfortable and sanitary than before and immensely improved in appearance. The outdoor cages for rhesus and other monkeys were all repaired, covered with new wire, provided with suitable water and sewer facilities, and generally put into first-class condition. Repairs were made to the ostrich enclosure, safety guards of electrically welded wire were placed along the fence bordering the walk in front of the main bear dens, and numerous minor repairs were made to cages and enclosures. In so far as was possible with the limited funds, necessary painting was done.

The principal construction for the year, however, has been the continuation of work on the recently graded area in the west-central part of the park, between the great flight cage and the hospital building. This work was commenced seven years ago but was discontinued during the war. It is greatly to be hoped that it may be completed during the current year. After building a new road from the hospital to the scales, near the Rocky Mountain sheep inclosure, over the edge of the fill previously made, the old winding road was abandoned and there was available a large area of flat ground suitable for paddocks. Four extra large yards were designed along the automobile road, where species commonly kept in breeding herds may be shown. One yard has been especially designed for Rocky Mountain goats and a miniature mountain of flint bowlders has been constructed within it. The other large yards bordering the automobile road have been prepared for red deer, barasingha deer, and Japanese deer. On the south side, bordering the walk passing the great flight cage for birds, are seven paddocks with shelters, designed especially for Indian buffaloes, tahr goats, aoudads, axis deer, and similar species. The water-buffalo yard has been provided with a large tank for bathing, and the tahr and aoudad yards with large rock piles. The axis deer shelter includes a closed room of commodious size for breeding females, as this species commonly brings forth the young in winter, when the weather out of doors is unfavorable for young fawns. Passing directly through the center of this system of yards from east to west is a service road along which all of the shelter houses have been built. This system places the retreats for animals at the rear of each yard, away from the public, and, after proper planting, makes the buildings comparatively inconspicuous. It also simplifies care and the shifting or transfer of animals without actual capture. At the end of the year the yards and shelters were practically completed; the principal work remaining undone includes sidewalks, parking space, tree boxes, guard rails, and other minor accessories.

ALTERATIONS OF BOUNDARIES.

With the approval on January 23, 1923, of the second deficiency bill, there was available $8,000 for the purchase of the strip of land between the park and Adams Mill Road between Ontario Road and Clydesdale Place. The completion of this purchase adds about 8,000 feet of land to the area of the park and protects the entrance at Adams Mill Road from unsightly development on one side. A new danger that threatens the beauty of this entrance way to the park has, however, most unexpectedly arisen. On March 4, 1923, an act of Congress was passed and approved dissolving the cemetery association controlling the burial ground bordering the Zoological Park on the south between Adams Mill Road and Rock Creek. The trustees named in the bill are authorized to transfer the bodies interred in this old cemetery and to sell the land. The permanent highways plan of the District of Columbia shows a proposed road across this property from Adams Mill Road to Calvert Street Bridge. It will be necessary in order to protect this section of the park, especially the beautiful roadway leading down from the Adams Mill Road entrance, to acquire that portion of the cemetery lying between this proposed roadway and the park boundary. It has been suggested that the permanent highways plan be modified, and that the proposed road across the old cemetery be made from Adams Mill Road at the corner of the Zoological Park to join Waterside Drive at Calvert Street Bridge. This would greatly reduce the area to be purchased for park purposes and amply protect the interests of the public.

IMPORTANT NEEDS.

Restaurant.—As pointed out in recent reports, a suitable restaurant building remains the most urgent need of the park. The old refreshment stand was constructed many years ago of the cheapest materials. At the present time it is in a bad condition and is wholly inadequate to serve the needs of the public. The refreshment booth at Connecticut Avenue, on land recently transferred to the Government, should also be replaced by a new and more sightly structure. The increased income from rental of these two concessions will well repay for the construction of buildings adequate for the service of the constantly increasing number of visitors.

Bird house.—The valuable collection of rare and interesting birds now the property of the Government remains poorly housed for exhibition purposes. Because of the great interest taken in this division of the collection and the numbers of beautiful and curious birds from all parts of the world that are presented to the park, the collection is constantly growing. The old bird house was built as a temporary structure many years ago and, in addition to being in a bad condition, is entirely too small either to accommodate the crowds of interested visitors or to show to advantage the birds. Many rare specimens, as a matter of fact, can not regularly be placed on exhibition because of lack of room. It is greatly to be hoped that a new bird house may be provided for in the near future.

Funds for purchase of animals.—The park has never had sufficient funds for the purchase of animals. Rare specimens are from time to time offered for sale that would fill distinct gaps in the collection, but because of lack of funds for their purchase these are frequently lost to the park. Two conspicuous forms of mammal life—the Indian rhinoceros and giraffe—may be mentioned as examples. Opportunities to purchase good specimens of these spectacular species do not often come, but because of lack of money for their purchase the park has had to decline the few offered in recent years. In order that special opportunities may be taken advantage of promptly, there should be available from year to year a reasonable sum for the purchase and transportation of animals.

Respectfully submitted.

N. Hollister, *Superintendent.*

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 7.

REPORT ON THE ASTROPHYSICAL OBSERVATORY.

Sir: The Astrophysical Observatory was conducted under the following passage of the independent offices appropriation act, approved June 12, 1922:

> Astrophysical Observatory: For maintenance of the Astrophysical Observatory, under the direction of the Smithsonian Institution, including assistants, purchase of necessary books and periodicals, apparatus, making necessary observations in high altitudes, repairs and alterations of buildings, and miscellaneous expenses, $15,500.

The observatory occupies a number of frame structures within an inclosure of about 16,000 square feet south of the Smithsonian administration building at Washington, and also a cement observing station and frame cottage for observers on a plot of 10,000 square feet leased from the Carnegie Solar Observatory, on Mount Wilson, Calif.

A new solar observing station on Mount Harqua Hala, Ariz., was erected in July, 1920, at the expense of funds donated for the purpose by Mr. John A. Roebling, of Bernardsville, N. J., and this station has been occupied as a solar radiation observing station by the Astrophysical Observatory since October, 1920.

The present value of the buildings and equipment for the Astrophysical Observatory, owned by the Government, is estimated at $50,000. This estimate contemplates the cost required to replace the outfit for the purposes of the investigation.

Work at Washington.—No observations were attempted at Washington. Mr. Fowle, Mrs. Bond, and the director, as much of his time as possible, were engaged in computations necessary (1) to the search for systematic errors in the work of Mount Harqua Hala, Ariz., and the application of carefully determined corrections thereto; (2) to the publication of a comparison of two years of observations at Mount Harqua Hala, Ariz., and Mount Montezuma, Chile (see Monthly Weather Review, February, 1923); (3) to the preparation of a new set of curves for use from January 1, 1923, in the short method of solar constant determination at Montezuma, Chile; (4) to the search for systematic errors and the application of carefully determined corrections to Montezuma results on the new basis; (5) to the reduction of observations made at Mount Wilson in 1922 on the form of the solar spectrum energy curve and on the spectrum energy curves of ten of the brighter stars.

It was apparent from the comparison, just referred to, between the results of the two field stations that they were in close accord on the sun's variation. But the Chile station was employing in its reductions the results of work prior to 1913 on the distribution of radiation in the solar energy spectrum; while the Arizona station was employing results of 1920. Moreover, the pyranometer in use in Chile was of an old type unsuitable to the work. Furthermore, the sharpness of definition of the spectrum employed at Mount Harqua Hala was inferior to that employed at Montezuma. It seemed probable that to remedy these defects and put the two stations on equality in all respects would lead to even closer harmony in their results, although it meant a revision of the whole scheme of reductions at both stations, with a redetermination of the systematic errors at each. This is very important, for the solar variations rarely exceed 5 per cent, and are mainly less than 2 per cent. It taxes the best observing to reveal them. These were the circumstances which led to the large computing program stated in the preceding paragraph. It has resulted in putting the two stations on equal footing in every possible way. They are now capable of turning out jointly the best results on the solar variation that our experience can suggest a means to attain.

The instrument maker, Mr. Kramer, has been on detached service for almost the entire year, engaged in the preparation, according to plans of the director, of two solar radiation outfits ordered, respectively, by a committee of interested gentlemen in Australia and by the Government of Argentina. The Australian outfit was finished and sent forward in June, 1923. The Argentine outfit will go forward about December, 1923.

Field work at Mount Wilson.—Messrs. Abbot and Aldrich observed on Mount Wilson in the months of July, August, and the fore part of September, 1922. They redetermined the form of the solar spectrum energy curve. For this investigation they employed several different prisms, including two of rock salt. Their object in this course was to vary the procedure, as far as possible, so as to get several independent checks on the results. Upon reduction, all of the results of 1922 came into good accord with one another, and confirmed the work of 1920 very satisfactorily. It now appears that a large part of the earlier work, on which results published in Volumes III and IV of the Annals were based, was injured in accuracy by the employment of a quartz prism of inferior transparency. If this quartz prism work is rejected, the remaining early work is in fair accord with that of 1920 and 1922. The new results, therefore, now are accepted, and were published immediately after their completion. (Smithsonian Miscellaneous Collections, Vol. 74, No. 7, 1923.)

In the course of this solar energy spectrum work, the observers made solar energy curves with rock-salt prisms at different hours of the day, extending as far down the spectrum as to wave-length 14 microns. As yet these observations are not reduced.

A long and difficult task was undertaken in the observation of the prismatic energy spectra of 10 of the brighter stars in the focus of the 100-inch reflector on Mount Wilson. After much discouragement in preparation of apparatus and preliminary trials, successful results were obtained on three nights. The apparatus included a special bolometer and a special galvanometer. Changes of temperature of about one one-hundred-millionth of a degree Centigrade were observable, and electric currents of about 10^{-12} amperes were read with the galvanometer of 10 ohms resistance. So sensitive was the device that it was affected to an almost incredible extent by electromagnetic induction. It even appeared that the operation of electric power in Pasadena and Los Angeles was effective to cause disturbance through the transmission lines up the mountain though cut off at the power house a thousand feet away from the telescope. Accordingly, best observations were made after 2 o'clock in the morning. The results are given in the paper just cited.

Field work in Arizona and Chile.—The Mount Harqua Hala station observed solar variation throughout the year under the efficient direction of Mr. A. F. Moore, assisted until April, 1923, by Mr. F. A. Greeley. Mr. P. E. Greeley, who had been at Montezuma, exchanged places with his brother and reported at Harqua Hala about June 8, 1923.

Mr. L. B. Aldrich assumed the directorship at Montezuma about December 20, 1922, succeeding Mr. L. H. Abbot. At both stations the results of 1923 have been very numerous. They had not yet been critically compared at the close of the period covered by this report.

RESULTS OF THE WORK ON SOLAR RADIATION.

As long ago as 1903, we found in the observations then being conducted in Washington some indication of a variation of the sun's output of radiation. These indications were pursued for several years at Mount Wilson and Mount Whitney, and became so strong that, in 1911 and 1912, expeditions were maintained in Algeria, coincident with one at Mount Wilson, to test whether the supposed solar variations were really of local character. The results seemed confirmatory of real solar changes. The work went on in summer months at Mount Wilson, with gradual improvements up to 1920.

In the meantime Mr. H. H. Clayton, forecaster of the meteorological service of Argentina, had communicated evidence, at first by letter and later in two Smithsonian publications (Effect of Short Period Variations of Solar Radiation on the Earth's Atmosphere, Smithsonian Miscellaneous Collections, Vol. 68, No. 3, 1917; and Variation in Solar Radiation and the Weather, Smithsonian Miscellaneous Collections, Vol. 71, No. 3, 1920) showing dependence of the weather of various parts of the world on fluctuations of solar radiation. These indications he has now amplified and recently elaborately published (H. H. Clayton, "World Weather," Macmillan Co., New York, 1923). But even at the beginning, to one trained by the late Secretary S. P. Langley to hope that some time some connection would appear between solar and terrestrial changes, Mr. Clayton's work was very interesting.

At the writer's suggestion, Secretary Walcott approved the expenditure of accrued interest from the Hodgkins Fund to undertake all-year-round observations of solar variation in a cloudless climate. The Great War hindered the expedition, but it went forward in 1918 to Calama, Chile, a station chosen on the advice and extensive manuscript data furnished by Dr. Walter Knoche, formerly in charge of the weather service of Chile.

By that time Mr. Clayton's researches had led him to believe that actual forecasts might advantageously be based on solar radiation work. Accordingly, soon after the establishment of the Chile station, arrangements were made to telegraph its results to Buenos Aires, and a system of forecasting based thereon has actually been in use in Argentina for several years. Some of its results are quoted in the book of Mr. Clayton, just cited.

The work almost immediately attracted the favorable attention of Mr. John A. Roebling. By his advice and financial assistance, the Mount Wilson work was transferred to a more cloudless locality for all-year-round observing at Mount Harqua Hala, Ariz., and also the Calama work was transferred to a higher station, Montezuma, outside the dust and smoke of Calama and Chuquicamata, which had been serious inconveniences.

During these many years, we had plodded on in hope of a satisfying fruition of our labors. Many signs there were that the solar radiation varies sufficiently to be of importance in terrestrial concerns. But they were of the nature of incompletely verified evidences of various sorts, all pointing the same way, but none in itself conclusive. With the continuous all-year-round occupation of the two first-rate stations, made possible by Mr. Roebling's generosity, the matter could be put, for the first time, to a rigorous test. And now we have made this test. It is conclusive and proves the substantial character of solar variation. Hereafter we walk by sight, where hitherto we walked by faith.

In the publication cited (Monthly Weather Review, February, 1923) we show that in over 100 days, when results were obtained at both Arizona and Chile, the average deviation of one station from the other is 0.68 per cent, thus indicating a probable error of one day's observation at one station of 0.41 per cent. The average deviation for two years of monthly mean values between the two stations is 0.3 per cent, and this small value would doubtless be considerably smaller if the individual days of the several months had always been coincident. Although in opposite hemispheres, where winter at one station falls in summer at the other station, there is no evidence of seasonal divergence between the two stations. They unite in showing solar variation. Indeed the march of the monthly mean values from November, 1921, to September, 1922, in which they agree closely, gives the most conspicuous instance of long-continued solar change in a given direction which we have ever noted. The reader may compare it with the four years of monthly means curve given at the top of the illustration.

In short, there can not be, we think, any longer a reasonable question that the sun varies, or that our observations can reveal these variations satisfactorily. It is now a question for meteorologists whether these variations are of importance in weather forecasting. As we report these satisfying conclusions, it ought to be reported at the same time that the financial support furnished the Astrophysical Observatory by the Government would not have sufficed to obtain these results without the aid of the Hodgkins fund of the Smithsonian Institution, and the generous financial support and wise counsel of Mr. John A. Roebling.

Although done a few days after the close of the period covered by this report, it will be fitting in this connection to mention some preliminary observations on changes of the appearance of the sun accompanying changes in its output of radiation. Being at Pasadena in July, 1923, the director availed himself of permission given by Director Adams to examine two years of record prints from direct photographs and hydrogen (Hα) spectroheliograms of the sun made at the Mount Wilson Solar Observatory. Four general rules or principles seemed to be well established by the comparisons made.

1. When increased sun-spot activity appears, either by new spot groups forming on the visible solar disk, by the growth of spots already present, or by the coming on of a new group due to the solar rotation, then on that very day the solar constant value increases.

2. When a sun-spot group is carried by the solar rotation across the central diameter of the visible disk, then the solar constant value declines, and usually has a minimum on the day following such central transit.

3. When many spot groups, faculae, or long strings of dark hydrogen flocculi indicate that great solar activity is prevailing, the solar constant is high.

4. When a long quiescent period occurs in solar activity, the solar constant values steadily decline.

These rules connecting the solar radiation with the sun's visible appearance seem to hold some promise of quantitative development.

Possibly there may be found some formula for computing solar constant values by the aid of direct solar photographs and hydrogen and calcium spectroheliograms, which may enable the solar radiation values to be expressed with fair approximation for the past quarter of a century. If so, it will be of great advantage.

PERSONNEL.

In addition to the changes of personnel above mentioned, Mr. William H. Hoover was temporarily engaged as assistant beginning March 12, 1923. He is in training to be director of the proposed solar radiation observatory of the Argentine Government at La Quiaca, Argentina. Mr. Hoover spent some time in Washington and some upon Mount Harqua Hala, Ariz. Mrs. Arline Leary served as temporary computer, beginning April 16, 1923. Both of these assistants were paid from funds given for the purpose by Mr. John A. Roebling.

SUMMARY.

A comparison of two years of results on the variation of solar radiation observed at Mount Harqua Hala, Ariz., and Montezuma, Chile, shows close accord between the stations and agreement between them in showing forth solar changes of both long and short interval types. Monthly mean values of both stations indicate a long continued decline of the output of solar radiation beginning in November, 1921, and continuing at least until September, 1922. This is in some respects the most remarkable solar change on record. Great improvements have been made at both stations, and their observations have been put as far as possible on exactly equal footing. It is believed that beginning January 1, 1924, there will be still closer accord in their results. Definite correspondences have been observed between the variation of the sun's radiation and the variation of the most marked of its visible features. Several new determinations of the form of the sun's energy spectrum distribution curve confirm the similar work of 1920, and lead to a revision of the results of earlier work published in Volumes III and IV of the Observatory Annals. Energy spectra of 10 of the brighter stars were observed at the focus of the 100-inch telescope on Mount Wilson by means of a special spectrobolometric apparatus. Temperature differences of approximately one one-hundred-millionth of a degree centigrade were measured in this investigation. Solar radiation outfits have been prepared for Australia and Argentina, to be installed in the year 1923.

Respectfully submitted.

C. G. Abbot, *Director.*

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 8.

REPORT ON THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

SIR: I have the honor to submit the following report on the operations of the United States Regional Bureau of the International Catalogue of Scientific Literature for the fiscal year ending June 30, 1923.

As the success of this international enterprise, in common with all undertakings dependent on international cooperation, is necessarily controlled by world politics, it has been the hope of all interested in the International Catalogue that each year conditions would develop which would make reorganization possible and justify resumption of publication. As international affairs, both political and financial, are apparently still far removed from normalcy, the affairs of the catalogue are practically in the same condition as they were in 1922. As was noted in the last annual report, the Smithsonian Institution submitted a statement of its position to an international convention held in Brussels in July, 1922, to consider the affairs of the catalogue. This statement carried with it a suggestion whose object was to keep the international organization in existence, it being generally conceded that should the countries who are now and have been for the past 22 years officially cooperating in the support of the enterprise be for any reason disunited it would be practically impossible to ever regain their interest and support. Though these suggestions were printed in the last report of this bureau, they are in part reprinted here, as on them were based the resolutions to continue the regional bureaus until reorganization could be accomplished:

It is the belief of the Smithsonian Institution:

1. That a classified subject and author index to the literature of science is needed.

2. That no better means exists of attaining the end sought than by carrying out the original plan of the International Catalogue based on international cooperation, guided by uniform rules and schedules modified to meet changes in the several sciences, and, when possible, broadened in scope to include the allied technical branches of these sciences.

3. That every effort should be made to cooperate with all similar enterprises, including abstracting agencies, existing or projected, not only to prevent duplication of labor, but also to better serve the demands of those in need of bibliographic aid.

4. That on account of abnormal conditions still controlling publishing costs and monetary exchange, it is probable that actual publication can not be at

present resumed unless financial aid is had from some source outside the present organization; however, it is believed,

5. That the international organization should be kept in being through mutual agreement to continue the work of the regional bureaus until such time as it may be economically possible to resume publication. When that time arrives the stock of complete sets already published should be advertised for sale at a price within the reach of the smaller libraries and institutions, many of whom, although desiring this unique reference work, were prevented from subscribing on account of the high original cost.

Were the price reduced even to one-fourth of the original, stock in hand at that figure represents a sufficient sum to meet all outstanding obligations and leave a surplus for working capital.

This statement was read at the opening meeting of the convention and after a short discussion the following resolutions were adopted:

That the convention is of opinion that the international organization should be kept in being through mutual agreement to continue as far as possible the work of the regional bureaus until such time as it may be economically possible to resume publication.

That it be referred to the executive committee to consider and after full consultation with interested bodies to make proposals as to the form of future publication and to report with some definite scheme to a meeting of the international council to be summoned as soon as it appears possible that the publication can be resumed.

The executive committee referred to consists of one representative from each of the following named countries: England, France, Italy, Japan, Holland, Denmark and the United States.

At this convention Prof. Henry E. Armstrong, chairman of the executive committee, who is the only one of the founders of the catalogue remaining in the organization, submitted a report from which the following items have been copied:

At the outset there was great enthusiasm for the work among those who were its promoters in the different countries and great care was taken in the preparation of the scheme; the organization that has been developed, in consequence, has worked with remarkable smoothness. Bureaus have been established in 32 countries, and the relations between these and the central office in London have always been of the most harmonious character possible.

Most convincing proof has been obtained that international cooperation to such an end is not merely possible but may be made most effective. That all that was aimed at has been accomplished need not be contended; but the obvious shortcomings of the catalogue have been almost entirely due to lack of funds. To have established a system so widespread in its operations is no small achievement in itself.

I am profoundly convinced that the principles underlying the preparation of the catalogue are sound and that an international system of cataloguing scientific literature is proved to be feasible and that its advantages are incontestible.

It is the first work of the kind to be carried out in such detail and over so long a period—more than 20 years. To abandon the enterprise after so satisfactory a foundation has been laid would be to sacrifice an unique experience gained at the expense of great labor.

From the foregoing facts and opinions and from the experience of all who have occasion to use bibliographical aids, in matters relating to science and all its branches, it is apparent—

1. That there is a need for recording for the purpose of present and future reference the published results of scientific achievements.
2. That such a record to be comprehensive and complete must be international in its scope and therefore must necessarily be prepared through international cooperation.
3. That excepting for the organization known as the International Catalogue of Scientific Literature no such agency exists.
4. That, though not claiming perfection, the International Catalogue up to the beginning of the late war was and had been for some 14 years answering the demands and requirements of an international authors' list and classified subject index to the world's literature of science.
5. That the principal defects of the International Catalogue were lack of capital; lack of complete cooperation with enterprises similar in nature though more limited in scope.

All of these defects had been recognized and their correction provided for by authority vested in the executive committee whose plans were frustrated by the beginning of war and consequent financial collapse. It is believed and maintained by the advocates of the International Catalogue that the foundation as it at present exists, in spite of its financial difficulties, is the best and only one in existence on which to build a new and more far-reaching organization, trespassing on no occupied fields, though cooperating for the common good with all enterprises having the same or similar objects in view.

While many projects have been proposed and are now being advocated, none either in plan or scope compare with the International Catalogue and none have the international recognition and official support necessary for success. The capital needed to refinance the enterprise is so small in comparison with the results to be attained that it would be strange indeed if in this day of large ideas and large financial outlays this most promising bond between and aid for the thinkers and workers of all nations should be allowed to remain so crippled that its wealth of information must continue to be inaccessible because unpublished.

Respectfully submitted.

Leonard C. Gunnell,
Assistant in Charge.

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 9.

REPORT ON THE LIBRARY.

Sir: I have the honor to submit the following report on the activities of the library of the Smithsonian Institution for the fiscal year ended June 30, 1923.

Much has been accomplished, it is felt, toward better library service. Principal original articles, appearing in scientific and technical periodicals received for the Smithsonian deposit, have been brought to the attention of members of the staff, through the continued preparation of a daily list, circulated among heads of scientific bureaus under the Smithsonian Institution. Books in the employees' library have been rendered more accessible by their transfer to the present quarters. Better protection has been provided for the older accession books and other records by their removal to darker and less frequented quarters, and congestion has thus been relieved in the receiving room and in the filing cases. The number of publications loaned during the year reached a total of 12,076, and fully as many were consulted without being taken out.

Many rare volumes that otherwise would have required purchase at great expense have been received in exchange or by gift. Back numbers of publications required to complete sets have been requested in exchange from societies and organizations abroad, and many have generously responded during the year by presenting valuable material, hitherto not available in American libraries. Special attention has been given to the transmittal of Smithsonian publications in exchange.

FOREIGN PERIODICALS.

A classified list has been prepared during the year of foreign periodicals, exclusive of annuals and irregular serials, and the following table of subjects and languages is submitted:

Subject.	English.	French.	Germanic.	Italian.	Spanish.
Aeronautics	4	7	4	1	3
Agriculture	19	19	4	6	11
Anthropology	17	9	6	2	1
Archeology	10	15	1	3	3
Art	5	3		3	1
Astronomy	10	4	4	1	4
Bibliography	7	8	4	2	14
Biology—general	13	5	1	1	2
Botany	9	9	6	3	1
Chemistry	7	7	7		
Economics	10	7	4	1	5
Education	8	5	2		17
Engineering	38	11	6	3	11
Entomology	5	4	7	1	1
Geography	18	15	9	2	2
Geology	10	13	3	2	4
History	6	5	8	5	5
Ichthyology	3	1	3	3	
Mathematics	3	3	3	3	
Medical sciences	8	15	8	4	10
Meteorology	11	4	4	4	3
Navigation	4	1	2	1	2
Ornithology	4	4	6	1	1
Philology	1	5	7	2	1
Physics	3	3	12	1	1
Science—general	25	27	15	13	16
Zoology—general	5	8	7	1	
Total	263	217	143	69	119

BIBLIOGRAPHIC RESEARCHES.

The third volume of the "Bibliography of Aeronautics," covering the years 1917 to 1919, inclusive, compiled by the assistant librarian of the Smithsonian Institution, Paul Brockett, was issued during the year by the National Advisory Committee for Aeronautics. The first volume of this bibliography was issued in 1910 as volume 55 of the Smithsonian Miscellaneous Collections.

Efforts have been made for a number of years to compile a catalogue of the Watts de Peyster collection, Napoleon Bonaparte, and a bibliography of scientific and technical periodicals, but up to the past few years it has not been possible to devote much time to these projects. During the past year, however, Mr. Condit has been able to bring together a catalogue of the rarer historical works in the Watts de Peyster collection, and to prepare a classified list of current foreign periodicals received for the library. The latter work should not be confused with the larger plan, under way for many years, for the compilation of a list of publications of learned societies of the world in libraries throughout the United States. The completion of this project does not seem possible without the expenditure of a large sum of money, which is not at present available.

In the following reports of libraries administered under the Smithsonian Institution, a decrease will be noted in accessions, the natural consequence of the decline in publication abroad and the fact that war accumulations were taken care of last year.

SMITHSONIAN MAIN LIBRARY.

The additions to the main library, numbering 5,719, have been transmitted to the Smithsonian deposit in the Library of Congress, where they are made available to the public. Documents of foreign Governments, received in exchange for Smithsonian publications, have been transmitted in accordance with the established practice, without stamping or recording. The number of publications accessioned has now reached 893,307.

Theses were received from universities and institutes of technology abroad located at the following places: Amsterdam, Basel, Berlin, Bern, Bonn, Breslau, Clermont, Copenhagen, Delft, Dresden, Freiburg, Ghent, Giessen, Halle, Helsingfors, Karlsruhe, Kiel, Königsberg, Leipzig, Lund, Rostock, Tokyo, Tübingen, Utrecht, Zürich. A number of universities have temporarily discontinued the practice of sending the complete theses, owing to the increased cost of printing, and are now submitting them in abstract only.

Missing parts of incomplete sets were requested in exchange, as in previous years, with an increased percentage secured, although there was a decline both in wants requested and in wants secured. Of 2,174 publications requested, 921 were secured, a percentage of 43.2 as against 39.1 for last year.

SMITHSONIAN OFFICE LIBRARY.

The number of publications loaned from the office library was 2,756. The accessions numbered 378, of which 347 were volumes and the remainder parts and pamphlets. Attention should be called to the fact that no binding has been done for the office library during the last six years, owing to lack of funds.

The progress of the cataloguing in the general library catalogue of the Smithsonian Institution, kept in the office library, is shown by the following statistics:

	1922–23.	1921–22.
Volumes catalogued	6, 341	6, 502
Volumes recatalalogued	109	55
Charts catalogued	198	160
Typed cards	3, 870	4, 243
Library of Congress cards filed	858	592
New titles added to author catalogue	2, 299	1, 614

Of the special collections in the office library, mention has been previously made of activities in connection with the aeronautical collection, the Watts de Peyster collection, and the employees' library. Mention should also be made of the collection deposited by Mrs. Charles D. Walcott, who has kindly extended the period of deposit. It is frequently consulted by employees of the Smithsonian Institution.

UNITED STATES NATIONAL MUSEUM.

The widespread interest of members of the staff and friends of the museum is shown by the material donated during the year. Among the donors are Messrs. H. E. Boving, A. H. Clark, F. W. Clarke, W. H. Dall, Whitman Cross, C. G. Gilbert, O. P. Hay, A. D. Hopkins, Aleš Hrdlička, Emmanuel de Margerie, W. R. Maxon, W. de C. Ravenel, C. W. Richmond, S. A. Rohwer, W. Schaus, and Charles D. Walcott. The gifts of Doctor Dall to the sectional library of mollusks numbered 168 titles.

Valuable material has continued to come in exchange from museums, research organizations, and scientific societies at home and abroad.

The receipts of the year numbered 1,489 volumes and 2,796 pamphlets, bringing the total of books and other material in the library up to 160,560. Of these there are 62,170 accessioned volumes. New entry cards were made for 239 periodicals, and 13,314 parts were entered.

Much of the library's reference service is rendered through the sectional libraries, under the immediate custody of members of the scientific and administrative staff, located as follows:

NATURAL HISTORY BUILDING.

American archeology.
Anthropology.
Birds.
Fishes.
Geology.
Invertebrate paleontology.
Mammals.
Marine invertebrates.
Minerals.
Mollusks.
Old World archeology.
Paleobotany.
Physical anthropology.
Property clerk's office.
Reptiles and batrachians.
Superintendent's office.
Vertebrate paleontology.

ARTS AND INDUSTRIES BUILDING.

Administration.
Administrative assistant's office.
Foods.
History.
Mechanical technology.
Medicine.
Mineral technology.
Photography.
Textiles.
Wood technology.

SMITHSONIAN BUILDING AND ANNEX.

Botany.
Editor's office.
Graphic arts.
Taxidermy.
War library.

It will be seen that the use of the library can not be estimated upon the basis of its loans alone. Many volumes are consulted in the general library, the technological library, and the various sectional libraries without being taken out. References are frequently requested over the telephone by members of the staff of the Museum and other Government bureaus, and every effort is made to comply with these requests. Of the 9,220 loans made during the year, 5,191 were to the sectional libraries, and 1,929 were borrowed from other libraries.

The subject catalogue of the library has been increased by 4,400 cards. The arrangement of accumulated cards from the Concilium Bibliographicum, received since the close of the war, has been progressing and is well under way.

ASTROPHYSICAL OBSERVATORY LIBRARY.

The requirements of the staff of the Astrophysical Observatory, both in Washington and at the various stations, in the way of reference service, are met through the Astrophysical Observatory Library. Loans are made through the Smithsonian Office Library. There were added during the year 113 volumes, 27 parts of volumes, and 54 pamphlets.

BUREAU OF AMERICAN ETHNOLOGY LIBRARY.

The activities of the Bureau of American Ethnology Library are covered in the report of the chief of that bureau. The library is administered under his immediate direction.

NATIONAL ZOOLOGICAL PARK LIBRARY.

The library of the National Zoological Park, located three miles distant from the Smithsonian building, contains supplemental material of importance in the fields of zoology and park administration. The increase for the year, as shown by accessions, was six volumes and four parts.

NATIONAL GALLERY OF ART LIBRARY.

The National Gallery of Art Library is rapidly growing. Since the gallery has begun the issuance of a separate series of publications there has been a noteworthy increase in the material that has been received in exchange. There were accessioned 128 volumes and 213 periodicals. Periodical parts numbered 740. The gift of the year most worthy of mention is the large, handsomely illustrated volume of paintings in the Bachstitz Gallery at The Hague.

FREER GALLERY OF ART LIBRARY.

In connection with the art collections in the Freer building, a large library was brought together by Mr. Freer. A catalogue of the works contained in it has not been incorporated in the general library of the Institution. There have been, however, 137 accessions in the library, and 10 of these were added during the year. Many other volumes belonging to the Smithsonian Institution have been deposited in that building, to be retained indefinitely, most of these being reference works and volumes relating to Oriental art.

SUMMARY OF RECEIPTS AND ACCESSIONS.

The number of pieces of mail received during the year was 25,553, of which 6,272 publications were Government documents, and were sent to the Library of Congress, in accordance with the established practice. Additions to the library, as shown by the accession records, are given below.

Library.	Volumes.	Other publications.	Total.
Astrophysical Observatory	113	81	194
Freer Gallery of Art	10	1	11
National Gallery of Art	128	213	341
National Zoological Park	6	4	10
Smithsonian deposit	4,461	1,258	5,719
Smithsonian office	347	31	378
United States National Museum	1,489	2,796	4,285
Total	6,554	4,384	10,938

Respectfully submitted.

Paul Brockett,
Assistant Librarian.

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

APPENDIX 10.

REPORT ON THE PUBLICATIONS.

Sir: I have the honor to submit the following report on the publications of the Smithsonian Institution and its branches during the year ending June 30, 1923:

The Institution proper published during the year 9 papers in the series of Miscellaneous Collections, 1 annual report and pamphlet copies of 30 articles in the general appendix to this report, and 3 special publications. The Bureau of American Ethnology published 2 bulletins and 2 annual reports. The United States National Museum issued 1 annual report, 2 volumes of proceedings, 37 separates from the proceedings, 6 bulletins, 2 parts of bulletins, and 4 parts of volumes in the series of Contributions from the United States National Herbarium. The National Gallery of Art issued 1 volume in the series of Catalogues of Collections.

Of these publications there were distributed during the year 139,666 copies, which includes 130 volumes and separates of the Smithsonian Contributions to Knowledge, 18,801 volumes and separates of the Smithsonian Miscellaneous Collections, 25,229 volumes and separates of the Smithsonian annual reports, 3,016 Smithsonian special publications, 72,529 volumes and separates of the various series of National Museum publications, 17,694 publications of the Bureau of American Ethnology, 816 publications of the National Gallery of Art, 1,309 volumes of the Annals of the Astrophysical Observatory, 31 reports on the Harriman Alaska expedition, 74 reports of the American Historical Association, and 37 publications presented to but not issued directly by the Smithsonian Institution or its branches.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

Of the Smithsonian Miscellaneous Collections, volume 56, 1 paper was issued; volume 67, 1 paper; volume 74, 6 papers; volume 76, 1 paper; in all, 9 papers, as follows:

VOLUME 56.

No. 19. The Silver Disk Pyrheliometer (Reprint, revised). By C. G. Abbot. July 10, 1922. 10 pp., 1 pl. (Publ. 2008.)

VOLUME 67.

No. 8. Cambrian Geology and Paleontology. IV, No. 8. Nomenclature of Some Post Cambrian and Cambrian Cordilleran Formations (2). By Charles D. Walcott. March 5, 1923. pp. 457–476. (Publ. 2673.)

VOLUME 74.

No. 2. New Timaline Birds from the East Indies. By Harry C. Oberholser. September 27, 1922. 13 pp. (Publ. 2674.)

No. 3. Remains of Mammals from Caves in the Republic of Haiti. By Gerrit S. Miller, jr. October 16, 1922. 8 pp. (Publ. 2707.)

No. 4. Remains of Birds from Caves in the Republic of Haiti. By Alexander Wetmore. October 17, 1922. 4 pp. (Publ. 2708.)

No. 5. Explorations and Field-work of the Smithsonian Institution in 1922. May 4, 1923. 153 pp., 145 figs. (Publ. 2711.)

No. 6. Designs of Prehistoric Pottery from the Mimbres Valley, New Mexico. By J. Walter Fewkes. May 29, 1923. 47 pp., 140 figs. (Publ. 2713.)

No. 7. The Distribution of Energy in the Spectra of the Sun and Stars. By C. G. Abbot, F. E. Fowle, and L. B. Aldrich. June 4, 1923. 30 pp. (Publ. 2714.)

VOLUME 76.

No. 1. Some Practical Aspects of Fuel Economy. By Carl W. Mitman. June 2, 1923. 19 pp. (Publ. 2715.)

In press at close of year.

VOLUME 76.

No. 2. History of Electric Light. By Henry Schroeder. (Publ. 2717.)

No. 3. On the Fossil Crinoid Family Catillocrinidae. By Frank Springer. (Publ. 2718.)

No. 4. Report on Cooperative Education and Research Work Carried on by the Smithsonian Institution and its Branches. (Publ. 2719.)

No. 5. The Telescoping of the Cetacean Skull. By Gerrit S. Miller, jr. (Publ. 2720.)

No. 6. Descriptions of New East Indian Birds of the Families Turdidae, Sylviidae, Pycnonotidae, and Muscicapidae. By Harry C. Oberholser. (Publ. 2721.)

No. 7. Description of an Apparently New Toothed Cetacean from South Carolina. By Remington Kellogg. (Publ. 2723.)

SMITHSONIAN ANNUAL REPORTS.

REPORT FOR 1921.

The Annual Report of the Board of Regents for 1921 was received from the Public Printer in June, 1923.

Annual Report of the Board of Regents of the Smithsonian Institution, showing operations, expenditures, and condition of the Institution for the year ending June 30, 1921. xi+638 pp., 113 pls. (Publ. 2675.)

The general appendix to this report contains the following papers:

The daily influence of astronomy, by W. W. Campbell.
Cosmogony and stellar evolution, by J. H. Jeans.
The diameters of the stars, by A. Danjon.
Isotopes and atomic weights, by F. W. Aston.

Modifying our ideas of nature: The Einstein theory of relativity, by Henry Norris Russell.

The alkali problem in irrigation, by Carl S. Scofield.

An outline of geophysical-chemical problems, by Robert B. Sosman.

The yielding of the earth's crust, by William Bowie.

The age of earth, by the Right Hon. Lord Rayleigh, W. J. Sollas, J. W. Gregory, and Harold Jeffreys.

The department of geology of the U. S. National Museum, by George P. Merrill.

Some observations on the natural history of Costa Rica, by Robert Ridgway.

The historic development of the evolutionary idea, by Branislav Petronievics.

The heredity of acquired characters, by L. Cuénot.

Breeding habits, development, and birth of the opossum, by Carl Hartman.

Some preliminary remarks on the velocity of migratory flight among birds, with special reference to the Palaearctic region, by R. Meinertzhagen.

A botanical reconnaissance in southeastern Asia, by A. S. Hitchcock.

Ant acacias and acacia ants of Mexico and Central America, by W. E. Safford.

The fall webworm, by R. E. Snodgrass.

Collecting insects on Mount Rainier, by A. L. Melander.

The science of man: Its needs and prospects, by Karl Pearson.

Pigmentation in the old Americans, with notes on graying and loss of hair, by Aleš Hrdlička.

Ancestor worship of the Hopi Indians, by J. Walter Fewkes.

The Indian in literature, by Herman F. C. Ten Kate.

Leopard men in the Naga Hills, by J. H. Hutton.

A new era in Palestine exploration, by Elihu Grant.

The alimentary education of children, by Marcel Labbé.

A fifty-year sketch history of medical entomology, by L. O. Howard.

Laid and wove, by Dard Hunter.

Lead, by Carl W. Mitman.

William Crawford Gorgas, by Robert E. Noble.

REPORT FOR 1922.

The report of the executive committee and proceedings of the Board of Regents of the Institution, and the report of the secretary, both forming part of the annual report of the Board of Regents to Congress, were issued in pamphlet form in December, 1922.

Report of the executive committee and proceedings of the Board of Regents of the Smithsonian Institution for the year ending June 30, 1922. 10 pp. (Publ. 2710.)

Report of the Secretary of the Smithsonian Institution for the year ending June 30, 1922. 125 pp. (Publ. 2709.)

The general appendix to this report, the manuscript of which went to the Government Printing Office a few days after the close of the fiscal year, contains the following articles:

Who will promote science? by C. G. Abbot.

Recent discoveries and theories relating to the structure of matter, by Karl Taylor Compton.

The architecture of atoms and a universe built of atoms, by C. G. Abbot.

Aeronautic research, by Joseph S. Ames.

Photosynthesis and the possible use of solar energy, by H. A. Spoehr.

Fogs and clouds, by W. J. Humphreys.

Some aspects of the use of the annual rings of trees in climatic study, by Prof. A. E. Douglass.

The age of the earth, by T. C. Chamberlin and others.

How deep is the ocean? by C. G. Abbot.

Two decades of genetic progress, by E. M. East.

Observations on a Montana beaver canal, by S. Stillman Berry.

The Republic of Salvador, by Paul C. Standley.

The tent caterpillar, by R. E. Snodgrass.

The life history and habits of the solitary wasp, *Philanthus gibbosus*, by Edward G. Reinhard.

The use of idols in Hopi worship, by J. Walter Fewkes.

Two Chaco Canyon pit houses, by Neil M. Judd.

Collections of Old World archeology in the United States National Museum, by I. M. Casanowicz.

The "Shake Religion" of Puget Sound, by T. T. Waterman.

Excavations at Askalon, by Prof. J. Garstang.

National efforts at home making, by F. H. Newell.

Ideals of the telephone service, by John J. Carty.

SPECIAL PUBLICATIONS.

The Smithsonian Institution (descriptive pamphlet). 7 pp.

Title page and contents of Volume 62, Smithsonian Miscellaneous Collections. (Publ. 2716.)

Title page and contents of Volume 72, Smithsonian Miscellaneous Collections. (Publ. 2706.)

PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM.

The publications of the National Museum are: (*a*) The annual report, (*b*) the Proceedings of the United States National Museum, and (*c*) the Bulletin of the United States National Museum, which includes the contributions from the United States National Herbarium. The editorship of these publications is vested in Dr. Marcus Benjamin.

During the year ending June 30, 1923, the Museum published 1 annual report, 2 volumes of proceedings, 6 complete bulletins, 2 parts of bulletins, 4 parts of volumes in the series Contributions from the United States National Herbarium, and 37 separates from the proceedings.

The issues of the bulletin were as follows:

Bulletin 100, volume 5. Contributions to the biology of the Philippine Archipelago and adjacent regions—Ophiurans of the Philippine seas and adjacent waters. By Rene Koehler.

Bulletin 120. The opalinid ciliate infusorians. By Maynard M. Metcalf.

Bulletin 121. Life histories of North American petrels and pelicans and their allies—Order Tubinares and order Steganopodes. By Arthur Cleveland Bent.

Bulletin 122. A monograph of the American shipworms. By Paul Bartsch.

Bulletin 123. Revision of the North American moths of the subfamily Eucosminae of the family Olethreutidae. By Carl Heinrich.

Bulletin 124. The type species of the genera of Chalcidoidea or Chalcid-flies. By A. B. Gahan and Margaret M. Fagan.

Bulletin 126. Life histories of North American wild fowl—Order Anseres (part). By Arthur Cleveland Bent.

Of the separate papers of the Contributions from the United States National Herbarium, the following were issued:

Volume 23, part 2. Trees and Shrubs of Mexico. (Fagaceae-Fabaceae). By Paul C. Standley.

Volume 24, part 2. Studies of tropical American ferns, No. 7. By William R. Maxon.

Volume 24, part 3. Key to the Genus Diplostephium, with Descriptions of New Species. By S. F. Blake.

Volume 24, part 4. Native Names and Uses of Some Plants of Eastern Guatemala and Honduras. By S. F. Blake.

Of the separates from the proceedings, 5 were from volume 61, 21 from volume 62, and 11 from volume 63.

PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY.

The editorial work of the Bureau of American Ethnology is under the direction of Mr. Stanley Searles, editor. During the year there were published two annual reports and two bulletins, as follows:

Thirty-fourth Annual Report. Accompanying papers: A Prehistoric Island Culture Area of America (Fewkes). 281 pp., 120 pls., 69 figs.

Thirty-seventh Annual Report. Accompanying paper: The Winnebago Tribe (Radin). 560 pp., 58 pls., 38 figs.

Bulletin 76. Archeological Investigations (Fowke). 204 pp., 45 pls., 37 figs.

Bulletin 77. Villages of the Algonquian, Siouan, and Caddoan Tribes west of the Mississippi (Bushnell). 211 pp., 55 pls., 12 figs.

There were in press or in preparation at the close of the year 4 annual reports and 5 bulletins, as follows:

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).

Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox Indian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society known as "Those Who Worship the Little Spotted Buffalo; "The Traditional Origin of the Fox Society known as "The Singing-Around Rite" (Michelson).

Forty-first Annual Report. Accompanying paper: Social Organization and Social Usages of the Indians of the Creek Confederacy (Swanton).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 79. Blood Revenge, War, and Victory Feasts among the Jibaro Indians of Eastern Ecuador (Karsten).

Bulletin 80. Mandan and Hidatsa Music (Densmore).

Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon).

Bulletin 82. Fewkes and Gordon Groups of Mounds in Middle Tennessee. (Myer).

REPORT OF THE AMERICAN HISTORICAL ASSOCIATION.

The annual reports of the American Historical Association are transmitted by the association to the secretary of the Smithsonian Institution, and by him are communicated to Congress under provisions of the act of incorporation of the association.

The annual report for 1919 was still in press at the close of the year, and there were also in press the supplemental volumes entitled "Writings in American History," to the reports for 1919, 1920, and 1921.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION.

The manuscript of the Twenty-fifth Annual Report of the National Society, Daughters of the American Revolution was transmitted to Congress according to law on December 28, 1922.

THE SMITHSONIAN ADVISORY COMMITTEE ON PRINTING AND PUBLICATION.

The editor has continued to serve as secretary of the Smithsonian advisory committee on printing and publication. To this committee are referred for consideration and recommendation all manuscripts offered for publication by the Smithsonian Institution and its branches, and it also considers routine forms and other matters relating to printing and publication. Seven meetings were held during the year and 104 manuscripts were acted upon.

Respectfully submitted.

W. P. True, *Editor.*

Dr. Charles D. Walcott,
Secretary, Smithsonian Institution.

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SMITHSONIAN INSTITUTION LIBRARIES
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